



Measurement and Comparison of Reader Self-Perceptions of Teacher Board Passers and Non-passers: Application of Factor Analysis and Rasch Model

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Abstract — The Reader Self-Perception Scale (RSPS) is widely used to gauge young learners' reading self-efficacy, yet little is known about whether its underlying constructs generalize to adult populations. This study examined the psychometric appropriateness of the RSPS2 for Filipino college graduates and compared reader self-perception between graduates who passed and did not pass the Licensure Examination for Teachers (LET). Using exploratory factor analysis on responses from 163 Bachelor in Secondary Education (BSEd) graduates, the observational comparison (OC) and social feedback (SF) constructs — treated as distinct dimensions among younger readers — were found to represent a single construct among adult readers. A subsequent Rasch (Partial Credit) model analysis flagged three items (16, 36, and 39) as misfitting and in need of review to improve the instrument's precision with adult samples. Using a Rasch-filtered subsample of 47 graduates with confirmed LET outcomes, an independent-samples *t*-test showed that RSPS total scores differed significantly between LET passers ($M = 127.76$, $SD = 15.56$) and non-passers ($M = 114.29$, $SD = 15.91$), $t(45) = 2.697$, $p < .01$. It is assumed that this difference can potentially be used to anticipate future board performance from reader self-perception alone, without directly assessing reading comprehension skills.

Keywords — reader self-perception, RSPS2, factor analysis, Rasch model, licensure examination, predictor

I. INTRODUCTION

Literacy occupies an indispensable place in education, and educators have long organized their efforts around cultivating it in learners. As typically defined, literacy is an individual's ability to read, write, and perform basic mathematical operations (Openjuru, 2004). Of its two inseparable component skills, reading and writing, both are cognitive processes through which meaning is constructed rather than simply decoded.

Reading, as a key facet of literacy, is a multifaceted undertaking that is at once socio-cultural, physical, and, most importantly, cognitive (CPDD, 2010). It involves the acquisition and interpretation of meaning from written text, and this multidimensional character means that reading performance is shaped by a range of factors, including the reader's interests (Bugel & Buunk, 1996), the subject matter, decoding skill, linguistic

knowledge, and text complexity (Barrett, 2012). Interest, motivation, and text structure further enrich or constrain these processes.

A separate but related line of research links the development of reading skill to the reader's self-concept — a belief system that evolves continuously through experience in the home and school. Parents and teachers therefore play an outsized role in shaping how a student comes to see themselves as a learner. Covington (2012) argued that perceived self-worth has a direct bearing on a student's motivation to engage in academic pursuits, while Ruddell and Unrau (2004) observed that positive reading experiences build confidence and sustain motivation for further reading. Bandura (1997) similarly noted that a student's perception of their own academic capability, including in reading, correlates strongly with their actual performance and proficiency.

Bandura (1997) further framed self-perception as an individual's assessment of their capacity to act competently in a given situation, particularly one involving uncertainty or stress — a mental framework that interprets personal experience and, in turn, shapes behavior (Wigfield & Karpathian, 1991). Learners who doubt their ability to accomplish a task tend to respond with heightened stress and apprehension, whereas those who trust their ability to cope tend to engage more fully. In short, believing in one's capacity to succeed sustains persistence, while self-doubt tends to produce avoidance of tasks perceived as exceeding one's coping capacity.

This body of work on self-efficacy suggests that individuals with a strong belief in their own abilities exert greater effort and, over time, achieve more than those with a less favorable self-view. A related and equally well-established line of research connects reading comprehension to metacognition: learners who are aware of their own cognitive processes tend to outperform those who are not (Brown, Armbruster, & Baker, 1974). Within this literature, self-perception is treated as a proximal influence on reading comprehension performance. Reid, Hresko, and Hammill (1989), for instance, argued that "the ability to detect errors in written material is strongly associated with overall reading proficiency," while Schunk and Rice (1992) reported that students who were coached in reading strategies subsequently displayed the strongest self-perceptions among the groups studied. Nash (2008) interpreted findings of this kind as evidence that learners equipped with effective self-management strategies work more independently and confidently.

Collectively, this growing body of metacognition research supports the view that a positive self-perception is associated with stronger motivation and improved academic performance. The present study builds on this foundation but shifts the lens toward a population that has received comparatively little attention: while prior work on reader self-perception has concentrated heavily on elementary-level learners, far less is known about how these constructs behave among older, more experienced readers such as college graduates.

This gap matters because one of the more pressing questions facing higher education is whether students entering tertiary study — and, later, the workforce — possess the literacy skills needed to succeed, and whether those skills are meaningfully strengthened during college. Since reading and writing proficiency are core learning outcomes of postsecondary education (Dion & Maldonado, 2013), the present study focuses specifically on college graduates rather than basic-education learners. Self-perception itself, however, remains a difficult construct to define and measure with precision, which is why instruments developed to capture it typically require repeated revision and re-validation across contexts.

To gauge student readers' self-perception, this study draws on four factors — progress, observational comparison, social feedback, and physiological states — as operationalized in the RSPS2 (Henk, Marinak, &

Melnick, 2012), a revision of the original Reader Self-Perception Scale developed for learners in grades 4 through 6. The RSPS2 is used for assessment, instruction, and research purposes, offering a comprehensive account of both individual and group reading self-perceptions.

With this context in mind, the study examined how graduates of the Bachelor in Secondary Education (BSEd) program perceive themselves as readers, and whether that self-perception differs between graduates who subsequently passed and those who failed the Licensure Examination for Teachers (LET).

Significance of the Study

Because prior work in metacognition has established a strong relationship between the four RSPS factors and academic achievement, the results of this study carry direct implications for classroom teachers, whose relationships with students are shaped in part by how those students interpret their own academic successes and struggles (Corbiere, Fraccaroli, Mbekuo, & Perron, 2006).

More broadly, the study offers teacher educators a fresh vantage point on how self-perception shapes learners' progress and future achievement-oriented behavior. Because reading behavior and the perception of one's own cognitive ability continue to develop throughout a student's time in the academe — not only in the early grades — it is important that this line of inquiry be extended into higher education. The findings reported here are intended to add to the evidence base that helps teacher-education programs support more effective, self-aware readers among their graduates.

Scope and Limitation of the Study

The study involved BSEd graduates majoring in Mathematics, English, and Biological Science from academic year 2018–2019. It assessed the psychometric appropriateness of the RSPS2 for this population and examined the relationship between graduates' reader self-perception and their subsequent LET outcome. The RSPS2 comprises four factors — progress, observational comparison, social feedback, and physiological states — that together allow educators and researchers to gauge how students see themselves as readers. The study is limited to graduates with available, verifiable LET outcome records and does not assess reading comprehension directly; RSPS scores are treated strictly as a measure of self-perceived, not demonstrated, reading ability.

Objectives

The specific objectives of the study were to: (1) assess the appropriateness of the Reader Self-Perception Scale for a sample of BSEd graduates; (2) measure the reader self-perception of the graduates; and (3) compare the mean reader self-perception scores of BSEd graduates who passed and did not pass the LET.

Framework of the Study

This study is anchored on Bandura's (1997) theory of perceived self-efficacy, which defines self-efficacy as the judgment individuals make about their capacity to perform an activity, and the influence that judgment exerts on their ongoing and future engagement with that activity.

Applied to reading, Bandura's model implies that readers weigh four basic sources of information when appraising their own ability: Progress, or how a reader's current performance compares with their own past performance; Observational Comparison, or how a reader's performance compares with that of peers; Social Feedback, or the verbal and non-verbal input readers receive from teachers, parents, and peers regarding

their reading; and Physiological States, or how reading makes the reader feel internally. These four sources are theorized to influence one another, and together they form the conceptual basis for the Reader Self-Perception Scale used in this study.

II. MATERIALS AND METHODS

This study proceeded in two phases: Phase 1 assessed the psychometric appropriateness of the instrument, and Phase 2 compared reader self-perception means between LET passers and non-passers. In both phases, the instrument used was the RSPS2, previously validated for a sample of Filipino college graduates. The scale consists of 47 items spanning four dimensions of reading self-efficacy — Progress, Observational Comparison, Social Feedback, and Physiological States. Progress items ask students to compare their present and past reading performance; Observational Comparison items ask them to judge their performance against that of classmates; Social Feedback items capture perceived input about their reading from teachers, parents, and peers; and Physiological States items describe how reading makes them feel internally. Respondents indicated their agreement with each statement on a five-point Likert scale ranging from Strongly Agree (5) to Strongly Disagree (1) (Table 1).

Because the scale's reliability was very high (Cronbach's $\alpha = 0.921$), item scores were summed to form a single RSPS total score for each respondent, in addition to being examined at the factor and item level using the analyses described below.

Table 1. Table of Specifications

Factor	Item Number
Progress (PR)	2, 3, 7, 9, 18, 19, 21, 24, 31, 33, 35, 38, 39, 41, 45, 47
Observational Comparison (OC)	5, 10, 12, 13, 15, 20, 27, 37, 43
Social Feedback (SF)	4, 8, 11, 16, 28, 29, 36, 40, 46
Physiological States (PS)	1, 6, 14, 17, 22, 23, 26, 30, 32, 34, 42, 44

Scale: 5 – Strongly Agree (SA); 4 – Agree (A); 3 – Undecided (U); 2 – Disagree (D); 1 – Strongly Disagree (SD).

Data Cleaning

Because the ultimate purpose of the study was to compare reader self-perception between LET passers and non-passers, records with unknown or unconfirmed LET outcomes were excluded from that comparison. Of the 163 BSED graduates who completed the RSPS2, 114 had confirmed LET outcomes (passed or failed) and were retained for Phase 2. The complete sample of 163 respondents, however, was retained for the factor-analytic and Rasch analyses in Phase 1, since those analyses do not require a known LET outcome.

Participation was voluntary, and respondents were informed of the purpose of the study prior to completing the scale; individual LET results were obtained only in aggregated pass/fail form to protect respondent privacy, consistent with data-privacy requirements that ultimately also constrained the study's originally intended analysis (see below).

Phase 1. Instrument assessment. To determine whether the RSPS2 is appropriate for college-educated adults, exploratory factor analysis (EFA) was performed at the test level, and Rasch modeling was performed at the item level. Responses from all 163 graduates were analyzed using EFA with varimax rotation in SPSS, and using the Partial Credit Model (PCM) implemented in the eRm package in R (Mair & Hatzinger, 2016). The factor analysis tested whether the four-factor structure established for younger readers also holds for older,

college-educated readers, while the Rasch analysis identified any items whose response patterns depart from the model's expectations and thereby contribute disproportionately to measurement error.

Phase 2. Comparing RSPS scores of LET passers and non-passers. To determine whether reader self-perception differs between LET passers and non-passers, an independent-samples t-test was conducted after confirming the parametric assumptions of normality (via Q-Q plots) and homogeneity of variance (via Levene's test). Prior to this comparison, a person-fit check using Rasch infit/outfit statistics was applied to exclude respondents whose response patterns were too unpredictable or too predictable to be measured reliably by the scale (see Results).

III. RESULTS AND DISCUSSION

Appropriateness of the RSPS to College Students

Test-level analysis. Exploratory factor analysis provided useful insight into the structure of reader self-perception among college graduates. Four distinct factors emerged from the analysis, and after varimax rotation, the items loading on each factor showed strong, coherent loadings — evidence of a stable and reliable factor solution (Table 2).

The first factor to emerge was notable for combining two facets that are treated as distinct among younger readers: observational comparison (OC) and social feedback (SF). Among the BSEd graduates sampled here, these two facets converged into a single, unified construct, in contrast to studies of younger readers in which OC and SF load separately (Wigfield & Asher, 1996). This distinction is consistent with the idea that self-perception processes become more integrated and nuanced as readers mature from childhood into adulthood, plausibly because adult readers rely on a more consolidated, socially calibrated sense of how their reading is regarded by others.

The second factor corresponded to Progress (PR) — items describing how graduates perceive their own improvement as readers. The third factor, Physiological States (PS), reflects the emotional and physiological dimension of how reading makes a reader feel. The fourth factor contained fewer strongly loading items, but those items nonetheless clustered thematically with Progress, suggesting that even this smaller factor reflects graduates' perceptions of their own reading growth rather than a wholly separate construct.

Taken together, the factor analysis both confirms the broad four-factor architecture of the RSPS2 and reveals a meaningful structural difference for adult readers — namely, the merging of OC and SF into a single construct. This has a practical implication for scoring: for adult samples, OC and SF items may be more defensibly combined into a single composite than scored as separate subscales, and this distinction is worth testing in future validation work with independent samples.

Table 2. Factor Loadings of RSPS Items after Varimax Rotation

Item	F1	F2	F3	F4	Item	F1	F2	F3	F4
PS1	-.014	-.014	.575	.041	PR24	.385	.295	.105	.182
PR2	.069	.070	.216	.606	PS25	.107	.205	.723	.264
PR3	.251	.318	.048	.543	OC26	.739	.079	.100	-.114
SF4	.542	.178	.046	.332	SF27	.155	.158	-.078	-.148

OC5	.285	.324	-.119	.378	SF28	.688	.264	.135	-.017
PS6	.165	.038	.581	.359	PS29	.067	.479	.611	-.108
PR7	.383	.222	-.138	.054	PR30	.111	.753	.177	.092
SF8	.612	.027	.139	.276	PS31	.109	.487	.652	-.018
PR9	.162	.384	.283	.594	PR32	.269	.556	.385	.018
OC10	.691	.083	.147	.175	PS33	.100	.404	.662	-.120
SF11	.733	.100	.059	.267	PR34	.174	.574	.124	.000
OC12	.729	-.001	.031	.174	SF35	.757	.160	.140	-.050
OC13	.740	.038	.063	-.022	OC36	.740	.234	.097	.127
PS14	.108	.088	.593	.257	PR37	.227	.672	.330	.167
OC15	.677	.125	.165	.102	PR38	.257	.696	.245	.146
SF16	.475	.119	.105	.044	SF39	.657	.356	.177	.074
PS17	.353	.216	.641	.174	PR40	.170	.654	.080	.226
PR18	.170	.412	.262	.585	PS41	.189	.644	.257	.049
PR19	.144	.643	-.067	.339	OC42	.641	.237	.188	-.002
OC20	.735	.261	.092	.006	PS43	.096	.512	.481	-.092
PR21	.123	.514	.300	.339	PR44	.188	.620	.243	.217
PS22	.158	.294	.696	.200	SF45	.561	.154	.129	.138
PS23	.293	.165	.453	.036	PR46	.271	.600	.220	.229

Item-level analysis. Rasch analysis at the item level identified three items whose infit and outfit mean-square values fell outside the acceptable range of 0.7 to 1.3 (Table 3). Item 36 ("I know the meaning of more words than other students when I read"), which loads on the Observational Comparison (OC) construct, showed unusually low infit and outfit values, as did Item 39 ("My teachers think that I do a good job of interpreting what I read"), which loads on Social Feedback (SF). Low infit/outfit values of this kind indicate that these two items are more predictable — and therefore less informative — than the Rasch model expects, suggesting they contribute little unique measurement information for adult respondents and may be candidates for revision or replacement.

Item 16 ("My teachers think that I try my best when I read"), also loading on Social Feedback, showed the opposite pattern: a notably high infit/outfit value, indicating responses that were less predictable than the model expects. This kind of misfit suggests the item does not conform well to the underlying Rasch scale for this population and may be tapping something other than the intended construct.

Collectively, these item-level findings point to specific, targeted revisions — rather than a wholesale redesign — that could improve the RSPS2's precision and validity when used to measure reader self-efficacy among adult readers.

Table 3. Outfit and Infit Mean-Square Statistics of RSPS Items

Item	Outfit MSQ	Infit MSQ	Item	Outfit MSQ	Infit MSQ
item13	1.274	1.205	item17	0.802	0.824
item12	1.034	1.035	item24	1.053	0.927

item35	0.876	0.872	item38	0.835	0.860
item20	1.020	1.033	item43	1.197	1.078
item8	1.043	1.046	item30	0.952	0.909
item36	0.656	0.675	item32	0.800	0.815
item11	0.824	0.799	item29	1.136	1.074
item26	1.042	1.073	item44	0.832	0.864
item39	0.568	0.587	item14	1.372	1.161
item10	0.940	0.932	item41	1.059	0.941
item28	0.908	0.895	item9	1.022	1.049
item7	0.917	0.929	item23	1.144	1.100
item4	1.084	1.052	item3	1.002	0.994
item15	1.001	1.000	item22	0.862	0.873
item42	0.921	0.903	item37	0.904	0.816
item16	1.355	1.349	item33	1.138	1.064
item27	1.065	1.052	item25	0.956	0.953
item45	1.027	1.045	item18	0.802	0.767
item5	0.765	0.743	item21	0.906	0.950
item34	1.266	1.270	item6	0.959	0.972
item46	0.778	0.813	item31	0.783	0.860
item40	0.972	0.986	item1	0.845	0.870
item19	1.035	1.048	item2	1.124	0.908

Reader Self-Perception Measures of BSEd Graduates

Using the complete sample of 163 BSEd graduates, RSPS total scores are summarized in the histogram in Figure 1. The distribution appears bimodal, with a larger proportion of graduates scoring between 170 and 180 and a second cluster between 190 and 210 ($M = 184.82$, $SD = 18.33$). Despite this bimodality, the distribution is reasonably consistent with normality, as the accompanying Q-Q plot resembles a straight line. Given a maximum possible score of 235 and a minimum of 47 (expected median = 141), the observed mean sits roughly 43 points above the theoretical median — indicating that, on the whole, BSEd graduates in this sample report a very favorable reader self-perception.

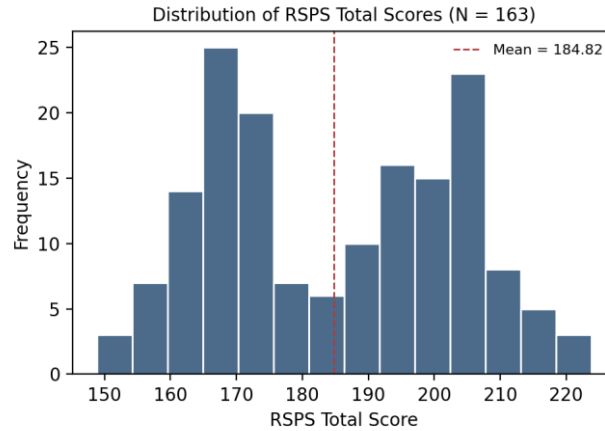


Figure 1. Distribution of RSPS Total Scores (N = 163).

Reader Self-Perception of LET Passers and Non-Passers

The study was originally intended to correlate RSPS scores directly with graduates' LET ratings. Because those ratings could not be obtained due to data-privacy restrictions, LET performance was instead treated as a binary outcome ("passed" or "failed"), and mean comparison was used to test whether RSPS scores differed between the two groups.

Table 4. Descriptive Statistics for RSPS Scores of LET Passers and Non-Passers

Group	n	Mean	SD
Passer	33	127.7576	15.56444
Non-passer	14	114.2857	15.90563

Person-fit screening using Rasch infit/outfit statistics retained only 47 of the graduates with confirmed LET outcomes, whose response patterns fell within the acceptable 0.7–1.3 range; the remaining respondents were excluded because their response patterns were judged too unpredictable or too predictable to be measured reliably. The retained 47 cases were then compared using an independent-samples t-test (Tables 4 and 5).

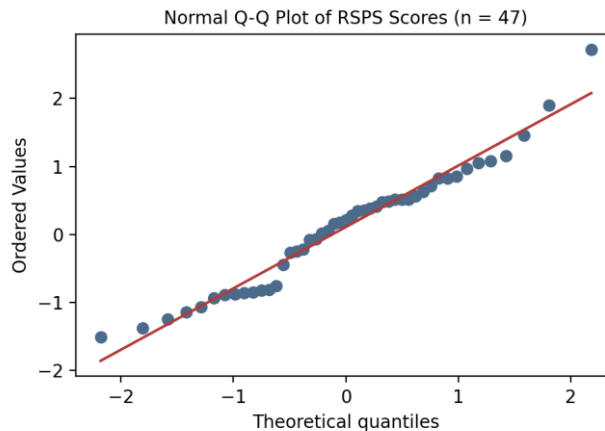


Figure 2. Normal Q-Q Plot of RSPS Scores (n = 47).

Table 5. Independent-Samples t-Test Comparing RSPS Mean Scores of Passers and Non-Passers

t	df	Sig. (2-tailed)	Mean Diff.	SE Diff.	95% CI Lower	95% CI Upper
2.697	45	0.01	13.47186	4.99602	3.40936	23.53436

Tests for normality (Q-Q plot, Figure 2) and for equality of variance (Levene's test) confirmed that the data satisfied the assumptions of the parametric t statistic; the null hypothesis of equal variances was retained, $F = 0.078$, $p > .05$. Mean RSPS scores were higher among LET passers ($M = 127.76$, $SD = 15.56$) than among non-passers ($M = 114.29$, $SD = 15.91$), and this difference was statistically significant, $t(45) = 2.697$, $p < .01$. In other words, passers reported a more favorable reader self-perception than non-passers.

These results suggest that RSPS scores can help differentiate graduates who are more or less likely to pass a future licensure examination, corroborating Rudio's (2016) earlier finding that reading skill predicts licensure performance. Because reader self-perception is far less costly and time-consuming to collect than a full reading-comprehension assessment, it may hold practical value as an early, low-burden screening indicator within teacher-education programs — a possibility that is best confirmed through prospective, longitudinal validation rather than the retrospective design used here.

Limitations of the Study

Several limitations qualify these findings. First, data-privacy restrictions prevented the use of actual LET ratings, so the analysis relied on a coarser pass/fail outcome, which limits the precision with which reader self-perception can be linked to licensure performance. Second, the Rasch person-fit screen retained only 47 of the 114 graduates with confirmed LET outcomes, a relatively small subsample that reduces statistical power and warrants replication with a larger cohort. Third, the sample was drawn from a single state college and three degree majors, which may limit generalizability to BSEd graduates elsewhere. Finally, because the design is correlational and cross-sectional, the results establish an association between reader self-perception and LET outcome rather than a causal, predictive mechanism; prospective studies that track graduates from RSPS administration through licensure attempt would provide a stronger test of predictive validity.

IV. CONCLUSION AND RECOMMENDATIONS

Reading skill can be indirectly gauged using the Reader Self-Perception Scale. Although the RSPS2 was originally developed for young learners, this study provides evidence that its underlying constructs are broadly appropriate for adult, college-educated readers, with one structural difference: the observational comparison (OC) and social feedback (SF) constructs, distinct among younger readers, converge into a single construct among adult readers. Item-level Rasch analysis further identified specific items — 16, 36, and 39 — that warrant review to improve the instrument's precision when used with adult samples.

RSPS scores of BSEd graduates also differed significantly between LET passers and non-passers, with passers reporting more favorable reader self-perception. This suggests that reader self-perception, gathered without directly assessing reading comprehension, may help anticipate future licensure examination performance.

Building on these findings, this study recommends that (1) teacher-education programs incorporate structured reading-enrichment activities for preservice teachers to strengthen reading self-efficacy ahead of the

licensure examination; (2) instrument developers and future researchers revisit Items 16, 36, and 39 of the RSPS2, either revising their wording or examining their conceptual fit for adult respondents; and (3) future studies pursue a prospective design — administering the RSPS2 well before graduates sit the LET and tracking actual outcomes and, where privacy permits, actual LET ratings — to more rigorously test reader self-perception as a predictor of licensure performance.

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