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Perceived Teacher Reinforcement and Academic Self-Concept Among Low-Achieving Secondary School Students in Trans-Nzoia County, Kenya

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Abstract
This study examined the association between perceived teacher reinforcement and the academic self-concept of low-achieving secondary school students in Trans-Nzoia County, Kenya, where no local evidence links the two for the lowest-achieving learners. Framed by Shavelson and Marsh's hierarchical model of academic self-concept and reinforcement theory, the study used a cross-sectional, convergent parallel mixed-methods design; because no reinforcement programme was delivered and data were collected at one time point, it reports associations rather than effects. From a population of 25,075 low-achieving students, 964 class teachers and 241 deputy principals, 384 students completed a five-point Likert questionnaire (reinforcement subscale α = 0.85, self-concept subscale α = 0.89) and 68 teachers and 34 deputy principals were interviewed. Quantitative data were analysed using descriptive statistics and bivariate regression; interview data using reflexive thematic analysis. A statistically significant, moderate positive association emerged between perceived reinforcement and academic self-concept ($r = .547$, $R^2 = .299$), the two sharing about 30 per cent of their variance. Interpersonal, verbal reinforcement ($M = 3.54–3.72$) was reported more frequently than formal recognition through assemblies and certificates ($M = 3.15–3.28$), and interview accounts converged on the importance of everyday, effort-focused recognition. Because both measures came from one self-report source at one time, reverse causation and common-method bias cannot be excluded, and the composites are provisional pending factor-analytic validation. Schools should strengthen specific, effort-focused classroom reinforcement, supported by school counselling.

Introduction
Education shapes how learners come to see themselves as academic beings, and among the classroom factors that bear on these self-perceptions, the reinforcement practices teachers use occupy an important place. In this study, perceived teacher reinforcement refers to learners' reports of the approving teacher responses they receive — verbal praise, acknowledgement of effort,

encouraging written feedback and recognition — following their academic behaviour. This perceptual definition is deliberately distinguished from operant reinforcement in the strict behaviourist sense (Skinner, 1953): the study did not manipulate consequences or deliver a reinforcement programme, but measured how much approving teacher response low-achieving learners report experiencing. Jenkins et al. (2015), in a review of classroom praise, document how widely such practices vary and how unevenly they reach learners.

Academic self-concept refers to the appraisals a learner makes of his or her own academic ability and is best understood as a multidimensional, hierarchical construct in which subject-specific appraisals nest under a more general sense of academic competence (Shavelson et al., 1976; Marsh & Shavelson, 1985). It is related to, but conceptually distinct from, two neighbouring constructs: self-efficacy, which is a forward-looking judgement of capability to perform a specific task (Bandura, 1997), and self-esteem, which is a global affective evaluation of self-worth (Bong & Skaalvik, 2003). The present study concerns academic self-concept specifically — the learner's appraisal of competence across academic work — and the ten questionnaire items map onto that definition. Academic self-concept is tied to motivation, persistence and attainment (Huang, 2011; Arens et al., 2021): learners who appraise themselves favourably invest more effort and recover more quickly from setbacks, whereas those with weak academic self-concept, frequently learners with a history of low achievement, tend to disengage and attribute failure to fixed ability.

International evidence broadly associates reinforcement with better academic outcomes and self-perceptions. Corcoran et al. (2018), synthesising 197 studies, reported gains from programmes incorporating positive reinforcement (d = 0.27 to 0.56); Wisniewski et al. (2020) documented feedback effects on self-perceptions (d = 0.35 to 0.70); and Caldarella et al. (2020) found that teachers' praise-to-reprimand ratios predicted student engagement. Hattie and Clarke (2019) drew a practical distinction: effort-targeted verbal feedback tends to outperform tangible rewards in shaping academic self-perceptions. Within Africa, Eremie and Doueyi-Fiderikumo (2019), working with senior secondary students in Rivers State, Nigeria, reported that positive reinforcement was associated with stronger academic achievement. Within Kenya, however, and Trans-Nzoia County in particular, no study has examined how perceived teacher reinforcement relates to the academic self-concept of the lowest-achieving learners, whose responses to reinforcement may differ from those of the general student population given their history of academic failure.

This gap matters because underachievement in the county is chronic. Nationally, in the 2023 KCSE examination only 201,133 of 899,453 candidates (22.36 per cent) attained the grade C+ threshold for direct university entry, while 373,231 (41.50 per cent) fell below the grade D+ pass (Ministry of Education, 2024); Trans-Nzoia mirrors this national pattern, with a large share of its candidates in the grade D+-and-below band that defines the target group of this study. Repeated failure tends to settle into a low academic self-concept, which discourages effort and entrenches underperformance; when teachers respond with infrequent or undifferentiated reinforcement, the cycle is sustained. Against this background, the study sought to establish whether perceived teacher reinforcement is associated with the academic self-concept of low-achieving secondary school students in Trans-Nzoia County, and to draw out the implications for classroom practice and school counselling. Specifically, it asked what level of perceived reinforcement these learners report; what level of

academic self-concept they hold; whether perceived reinforcement is associated with academic self-concept; and how teachers and deputy principals perceive the relationship between reinforcement and these learners' academic self-concept. Consistent with the cross-sectional design, the corresponding null hypothesis was that there is no statistically significant association between perceived teacher reinforcement and academic self-concept among low-achieving secondary school students in the county.

Method

The study employed a cross-sectional, convergent parallel mixed-methods design. Quantitative and qualitative strands were collected in parallel and analysed separately, then integrated at the interpretation stage through a joint display (Creswell & Plano Clark, 2018; Fetters et al., 2013). Because the design delivers no intervention and no repeated measurement, it supports statements of association, not of effect.

Population and Sampling

The target population comprised all students performing at grade D+ or below, all class teachers, and all deputy principals in the 295 public secondary schools in Trans-Nzoia County. The accessible population comprised 25,075 low-achieving students, 964 class teachers, and 241 deputy principals. The student sample size of 384 was determined using the Krejcie and Morgan (1970) table, which indicates that 384 is the required sample size for a large population at the 95 per cent confidence level and a 5 per cent margin of error. National and extra-county schools were excluded from the sampling frame because they admit students through national selection based on high KCPE performance and therefore enrol few low achievers. Schools were then selected by stratified random sampling across the remaining county and sub-county categories so that the sample mirrored their distribution. Within the selected schools, low-achieving students were purposively identified against the grade D+-and-below criterion; class teachers were purposively selected as those responsible for the identified classes; and deputy principals were included by purposive census. Because low-achieving students were selected through a purposive eligibility criterion rather than a probability sample from the whole student body, statistical inference is limited to low-achieving learners in the sampled schools and does not generalise to all secondary students in the county. Questionnaires were distributed to 450 eligible students, and interview invitations were sent to 80 class teachers and all 40 deputy principals; usable returns were obtained from 384 students, 68 class teachers, and 34 deputy principals, corresponding to response rates of 85.3, 85.0, and 85.0 per cent. The achieved student sample of 384 matches the Krejcie–Morgan target.

Instruments, Validity and Reliability

The principal quantitative instrument was a five-point Likert questionnaire administered to the student sample. Section A captured demographic characteristics (sex, form level, school category, school type, school gender composition and prior performance) and Section B carried the substantive items: eight items measured perceived teacher reinforcement (acknowledgement of effort, praise for improvement, encouragement, positive written feedback, verbal encouragement, rewards, certificate ceremonies and public acknowledgement), and ten items measured academic self-concept as appraisals of academic competence. A semi-structured interview guide was administered to class teachers and deputy principals. Content validity was established through

expert judgement by educational psychology specialists at Masinde Muliro University of Science and Technology, whose comments led to revisions and additions to the items. Reliability is reported separately from validity. Internal consistency was assessed for each subscale using Cronbach's alpha on a pilot sample of 45 respondents from a non-sampled school: the perceived reinforcement subscale returned $\alpha = 0.85$ and the academic self-concept subscale $\alpha = 0.89$, both indicating good to excellent internal consistency. A high alpha indicates item coherence within a scale but not the number of underlying dimensions; an exploratory or confirmatory factor analysis to establish the two-construct structure and the convergent and discriminant validity of the two scales was not computed and is recommended before the composites are treated as fully validated, a point noted among the limitations.

Data Analysis

Quantitative data were analysed using IBM SPSS Statistics, with descriptive statistics (means, standard deviations, and percentages) and bivariate regression at the 0.05 level of significance. Because the model contains a single predictor, the standardised regression coefficient equals the zero-order correlation; thus, the relationship is, in effect, a Pearson correlation and is reported as such. Multicollinearity does not arise with one predictor and is not reported. The data were screened for normality, linearity and homoscedasticity. The model includes no covariates, so variables such as prior achievement and home background remain uncontrolled and may confound the observed association; all claims are accordingly limited to association. Qualitative data from the interviews were analysed manually following Braun and Clarke's (2019) reflexive thematic analysis.

Reflexivity and Trustworthiness

Reflexive thematic analysis treats the researcher as an active instrument, so a positionality statement is in order. The interviews were conducted and coded by a researcher trained in educational psychology and familiar with Kenyan secondary schooling, an orientation that aided rapport and interpretation but also carried the risk of reading accounts through a prior expectation that reinforcement is beneficial; this risk was managed through reflexive memoing and the deliberate retention of disconfirming accounts. Coding proceeded through familiarisation, generation of initial codes, construction of candidate themes, review against the full dataset, and definition of final themes. Trustworthiness was supported by an audit trail of coded extracts and a peer debriefing with a second educational psychology researcher. The qualitative findings reported below summarise the accounts of the 68 class teachers and 34 deputy principals interviewed.

Ethical Considerations

Because the student participants were minors classified as low-achieving, ethical safeguards were essential. Ethical clearance was obtained from the Masinde Muliro University of Science and Technology Institutional Scientific and Ethics Review Committee (MMUST-ISERC), Approval No. MMUST/ISERC/148/2025 (Ref. MMU/COR: 40312 Vol 6(01)), valid from 21 August 2025 to 21 August 2026, and a research licence was issued by the National Commission for Science, Technology and Innovation (NACOSTI), Licence No. NACOSTI/P/25/4178969 (Ref. 538748), valid for the period ending 1 September 2026. Authorisation to access schools was granted by the Trans-Nzoia County Director of Education and the County Commissioner. Written parental or guardian consent

and written learner assent were obtained before participation; participation was voluntary, responses were anonymised, and respondents were free to withdraw at any time.

Results

Demographic profile of respondents

Table 1 summarises the demographic characteristics of the 384 student respondents. The sample comprised slightly more female learners (53.6 per cent) than male (46.4 per cent), with near-equal representation of Form 3 (51.6 per cent) and Form 4 (48.4 per cent). Most respondents were drawn from sub-county schools (76.8 per cent) and day schools (64.3 per cent), and two-thirds attended mixed, co-educational schools (66.9 per cent). All 384 respondents met the low-achieving criterion of grade D+ and below, distributed across grade D (34.9 per cent), D+ (29.7 per cent), D− (23.2 per cent) and E (12.2 per cent), confirming that the study reached its intended population.

Table 1: Demographic Profile of Student Respondents (N = 384)

Characteristic	Category	Frequency (f)	Per cent (%)
Sex	Female	206	53.6
	Male	178	46.4
Form level	Form 3	198	51.6
	Form 4	186	48.4
School category	County	89	23.2
	Sub-county	295	76.8
School type	Day	247	64.3
	Boarding	137	35.7
School gender composition	Boys only	58	15.1
	Girls only	69	18.0
	Mixed (co-educational)	257	66.9
Previous mean grade	E (0–1.99)	47	12.2
	D− (2.0–2.99)	89	23.2
	D (3.0–3.99)	134	34.9
	D+ (4.0–4.99)	114	29.7

Level of perceived teacher reinforcement

Table 2 presents the item-level descriptive statistics for the eight perceived reinforcement items and the composite.

Table 2: Descriptive Statistics for Perceived Teacher Reinforcement (N = 384)

S/N	Item	Mean	SD	Interpretation
1	My teachers praise me when I improve in my work	3.68	0.92	Agree
2	I receive verbal encouragement from teachers during class	3.54	0.88	Agree
3	Teachers recognise my academic improvement in class	3.42	0.94	Neutral
4	I am recognised during school assemblies for improvement	3.28	0.97	Neutral
5	I receive certificates or awards for academic improvement	3.15	0.95	Neutral
6	Teachers give positive feedback on my assignments	3.62	0.86	Agree
7	My parents are informed when I show improvement	3.38	0.91	Neutral
8	I feel motivated when teachers acknowledge my efforts	3.72	0.84	Agree
	Overall (composite)	3.47	0.89	Neutral

Note. Five-point scale; interpretation bands: Agree = 3.50–4.49, Neutral = 2.50–3.49. Items are listed individually so that the spread underlying the composite is visible.

Interpersonal, verbal forms of reinforcement attracted the highest ratings — feeling motivated when teachers acknowledge effort (M = 3.72), praise for improvement (M = 3.68), positive feedback on assignments (M = 3.62) and verbal encouragement in class (M = 3.54) all fell in the Agree band — whereas more formal, institutional recognition through school assemblies (M = 3.28) and certificates or awards (M = 3.15) was rated lower, in the Neutral band. The composite of 3.47 (SD = 0.89) sits just below the Agree threshold, indicating a moderate overall level of perceived reinforcement.

Level of academic self-concept

The composite mean for academic self-concept was 3.27 (SD = 0.85), above the scale midpoint of 3.00 but within the moderate band, indicating that the academic self-beliefs of the low-achieving learners in the sample were tentatively positive but not firmly established — a reading consistent with their history of underperformance. Table 3 reports the item-level descriptive statistics.

Table 3: Descriptive Statistics for Academic Self-Concept (N = 384)

S/N	Item	Mean	SD	Interpretation
1	I try hard in my school work	3.72	0.94	Agree
2	I am good at most school subjects	2.98	0.89	Neutral
3	I am able to do my schoolwork without much difficulty	3.05	0.92	Neutral
4	I understand concepts taught in class	3.18	0.88	Neutral
5	I am able to keep up with lessons in class	3.12	0.91	Neutral
6	I participate actively in class discussions	2.95	0.97	Neutral
7	I believe I can improve my academic performance	3.89	0.86	Agree
8	I feel confident when answering questions in class	2.87	0.95	Neutral
9	I can complete assignments independently	3.28	0.90	Neutral
10	I persist even when schoolwork is difficult	3.68	0.88	Agree
	Overall (composite)	3.27	0.85	Neutral

Note. Five-point scale; interpretation bands: Agree = 3.50–4.49, Neutral = 2.50–3.49.

A clear gap separates effort-related from competence-related self-appraisals. Effort and persistence items attracted the highest ratings — believing in the possibility of improvement (M = 3.89), trying hard in schoolwork (M = 3.72) and persisting when work is difficult (M = 3.68) all fell in the Agree band — whereas items tapping competence beliefs and classroom participation were rated lower, in the Neutral band: feeling confident when answering questions (M = 2.87), participating actively in class (M = 2.95) and being good at most subjects (M = 2.98). The pattern indicates that these learners remain willing to put in effort and hopeful about improvement, even though they have not yet developed firm confidence in their academic competence.

Association between perceived reinforcement and academic self-concept

The null hypothesis of no association was tested using bivariate regression at the 0.05 level; because the model has a single predictor, the standardised coefficient equals the zero-order correlation (r = .547). Results are presented in Tables 4, 5 and 6.

Table 4: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error
1	.547	.299	.297	.712

Note. Predictor: (Constant), Perceived Teacher Reinforcement.

Table 5: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	82.740	1	82.740	162.94	.000
Residual	193.980	382	0.508		
Total	276.720	383			

Note. Dependent variable: Academic Self-Concept. F = 82.740 / 0.508 = 162.94, reconciling with the reported sums of squares.

Table 6: Regression Coefficients

Model	B	Std. Error	β	t	Sig.
(Constant)	1.454	.145		10.028	.000
Perceived Reinforcement	.523	.041	.547	12.77	.000

Note. Dependent variable: Academic Self-Concept.

The model returned R = .547 and R^2 = .299, indicating a moderate positive association in which perceived reinforcement and academic self-concept share about 30 per cent of their variance. The association is statistically significant ($F(1, 382) = 162.94$, $p < .001$; $\beta = r = .547$, $t = 12.77$, $p < .001$), so the null hypothesis of no association is rejected. Because the design is cross-sectional and the model is unadjusted, the coefficient indexes the strength of an unadjusted association and not a causal effect.

Teacher and deputy-principal perspectives

Drawing on interviews with 68 class teachers and 34 deputy principals, three themes recurred. First, participants described effort-focused, specific commendation as closely bound up with how low-

achieving learners spoke about their own ability: several reported that learners who had withdrawn from participation began contributing once teachers acknowledged small improvements rather than only top scores. Second, participants distinguished everyday classroom encouragement from ceremonial recognition, judging the former more consequential for struggling learners, who rarely reach the podium and for whom ceremonies are largely out of reach. Third, participants emphasised that reinforcement was most useful when it was frequent, specific and addressed to effort rather than to fixed ability. These accounts are read alongside the survey results in the discussion.

Discussion

The analysis returned a statistically significant, moderate positive association between perceived teacher reinforcement and academic self-concept among low-achieving secondary school students in Trans-Nzoia County ($r = .547$, $R^2 = .299$), with the two measures sharing about 30 per cent of their variance. Table 7 sets the quantitative and qualitative strands side by side.

Table 7: Joint Display of Quantitative and Qualitative Findings

Quantitative finding	Qualitative finding	Relationship	Meta-inference
Moderate positive association ($r = .547$); effort-focused, interpersonal items rated highest ($M = 3.54–3.72$)	Effort-focused, specific commendation described as closely tied to learners' academic self-appraisal	Convergent	Everyday, effort-focused reinforcement is the form most associated with self-concept for this group
Formal recognition — assemblies, certificates — rated lowest ($M = 3.15–3.28$)	Ceremonies seen as largely out of reach for low achievers	Convergent	Formal, institutional recognition has limited reach for struggling learners

Interpreted through the study's guiding framework, this pattern is coherent. Reinforcement theory, originating in Skinner's (1953) account of operant learning and extended to classroom feedback by Hattie and Clarke (2019), holds that approving responses contingent on a behaviour tend to strengthen and stabilise it, so consistent teacher recognition of effort is expected to support a learner's sense of academic competence. Shavelson and Marsh's hierarchical model (Shavelson et al., 1976; Marsh & Shavelson, 1985) provides the structure of the outcome, treating academic self-concept as an organised set of competence appraisals that learners form, in part, from the evaluative feedback of significant others, including teachers. The mechanism linking the two is that perceived teacher reinforcement serves as recurring evaluative information that low-achieving learners incorporate into their academic self-appraisals: when effort is regularly and specifically acknowledged, learners have grounds to revise a depressed self-concept upward. Conceptually, the study models a single predictor in relation to a single outcome, and because the design is cross-sectional and both constructs are self-reported, the framework treats the relationship as bidirectional in principle — reinforcement may support self-concept, but learners with higher self-concept may also notice and report more reinforcement — so the hypothesis is associational rather than causal.

The direction and size of the association are broadly consistent with the international literature. Corcoran et al. (2018) and Wisniewski et al. (2020) reported moderate effects of reinforcement and feedback on achievement and self-perceptions, and Caldarella et al. (2020) linked praise to engagement; the Trans-Nzoia figure of about 30 per cent shared variance sits within this range, and

Eremie and Doueyi-Fiderikumo (2019) reported a comparable positive association in a Nigerian secondary setting. The finding that effort-focused, interpersonal items (M = 3.54 to 3.72) were reported more frequently than formal recognition through assemblies and certificates (M = 3.15 to 3.28) agrees with Hattie and Clarke (2019), who argued that effort-targeted feedback outperforms tangible rewards in shaping academic self-perceptions, and the interview accounts converge on the same point.

Two cautions bound the interpretation. First, direction cannot be established from these data: learners with higher academic self-concept may notice and report more reinforcement, so reverse causation is as plausible as the stated direction. Second, because both the predictor and the outcome were measured by the same self-report instrument at a single time point, common-method bias may inflate the association; the shared variance should therefore be interpreted as an upper bound rather than a precise estimate. Read together, the strands converge on a defensible associational conclusion: for low-achieving learners, the form reinforcement takes — specific, frequent and addressed to effort — is what tracks most closely with academic self-concept, even though the present design cannot show that reinforcement produces it.

Implications for Classroom Practice and School Counselling

Read through the framework, the findings suggest that the everyday evaluative language of the classroom is closely bound up with how low-achieving learners appraise their academic ability. Three implications follow, stated as associations rather than guarantees. First, teachers should be supported to make specific, effort-focused recognition a routine feature of lessons, since this form of reinforcement, rather than ceremonial recognition, is most strongly associated with the self-concept of struggling learners; this belongs in both pre-service training and in-service workshops. Second, school counsellors should be drawn closer to the academic life of the classroom: counsellors who understand the reinforcement practices actually in use are better placed to advise teachers and work with individual low-achieving learners to rebuild academic self-belief. Third, school management teams and the County Education Office should consider institution-wide reinforcement guidance that foregrounds effort and improvement rather than rank, so that recognition reaches the learners who most need it.

Limitations

Several limitations bound these conclusions. The design is cross-sectional and the model unadjusted, so no causal or directional claim is warranted, and reverse causation cannot be excluded. Because the predictor and outcome share a single self-report source measured at a single time point, common-method bias may inflate the association. Subscale reliabilities are reported (α = 0.85 for reinforcement and 0.89 for self-concept), but a factor analysis to confirm that the two scales form distinct constructs with convergent and discriminant validity was not conducted, so the composites, while internally consistent, should be treated as provisional pending that analysis. Low-achieving students were purposively sampled, so inference is limited to that population within the sampled schools. Finally, the model omits covariates, such as prior achievement and home background, that could confound the association.

Conclusion

This study examined the association between perceived teacher reinforcement and the academic self-concept of low-achieving secondary school students in Trans-Nzoia County. It found a statistically significant, moderate positive association ($r = .547$, $R^2 = .299$), with effort-focused, classroom-level reinforcement reported more frequently than ceremonial recognition and described by teachers as more closely tied to learners' academic self-appraisal. Because the design is cross-sectional and self-report based, the relationship is associational, and its direction cannot be established. On this basis the study recommends that schools strengthen specific, effort-focused classroom reinforcement directed at improvement rather than rank; that the County Education Office mount in-service workshops equipping teachers with evidence-based reinforcement practice tailored to struggling learners, with school management formulating institution-wide guidance; that school counsellors be integrated into the academic life of the classroom in support of low-achieving learners; and that subsequent studies adopt longitudinal or experimental designs, with multi-source measurement, to establish direction and effect.

References

Arens, A. K., Jansen, M., Preckel, F., Schmidt, I., & Brunner, M. (2021). The structure of academic self-concept: A methodological review and empirical illustration of central models. *Review of Educational Research, 91*(1), 34–72. https://doi.org/10.3102/0034654320972186

Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman.

Bong, M., & Skaalvik, E. M. (2003). Academic self-concept and self-efficacy: How different are they really? *Educational Psychology Review*, 15(1), 1–40. https://doi.org/10.1023/A:1021302408382

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. Qualitative Research in Sport, *Exercise and Health, 11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE.

Caldarella, P., Larsen, R. A. A., Williams, L., Downs, K. R., Wills, H. P., & Wehby, J. H. (2020). Effects of teachers' praise-to-reprimand ratios on elementary students' on-task behaviour. *Educational Psychology, 40*(10), 1306–1322. https://doi.org/10.1080/01443410.2020.1711872

Corcoran, R. P., Cheung, A. C. K., Kim, E., & Xie, C. (2018). Effective universal school-based social and emotional learning programs for improving academic achievement: A systematic review and meta-analysis of 50 years of research. *Educational Research Review, 25*, 56–72. https://doi.org/10.1016/j.edurev.2017.12.001

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research (3rd ed.)*. SAGE.

Eremie, M. D., & Doueyi-Fiderikumo, J. (2019). Positive reinforcement on academic achievement of senior secondary school students in Rivers State. *International Journal of Innovative Development and Policy Studies, 7*(1), 24–32.

Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs: Principles and practices. *Health Services Research, 48*(6, Pt 2), 2134–2156. https://doi.org/10.1111/1475-6773.12117

Hattie, J., & Clarke, S. (2019). *Visible learning: Feedback*. Routledge.

Huang, C. (2011). Self-concept and academic achievement: A meta-analysis of longitudinal relations. *Journal of School Psychology, 49*(5), 505–528. https://doi.org/10.1016/j.jsp.2011.07.001

Jenkins, L. N., Floress, M. T., & Reinke, W. (2015). Rates and types of teacher praise: A review and future directions. *Psychology in the Schools, 52*(5), 463–476. https://doi.org/10.1002/pits.21835

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610. https://doi.org/10.1177/001316447003000308

Marsh, H. W., & Shavelson, R. (1985). Self-concept: Its multifaceted, hierarchical structure. *Educational Psychologist, 20*(3), 107–123. https://doi.org/10.1207/s15326985ep2003_1

Ministry of Education [Kenya]. (2024). *Release of the 2023 Kenya Certificate of Secondary Education (KCSE) Examination results*. Government of Kenya.

Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research, 46*(3), 407–441.

Skinner, B. F. (1953). *Science and human behavior*. Macmillan.

Wisniewski, B., Zierer, K., & Hattie, J. (2020). The power of feedback revisited: A meta-analysis of educational feedback research. *Frontiers in Psychology, 10*, Article 3087. https://doi.org/10.3389/fpsyg.2019.03087