International Journal of Business, Law, and Education
Volume 7, Number 1, 2026
https://ijble.com/index.php/journal/index

Factors Associated with Student-Perceived Research Quality: Evidence from Categorical Analysis at MAN Insan Cendekia Lombok Timur

Muhammad Iqbal[1*], Ahmad Zainul Irfan[2], Muzakkir[3], Ahmad Muslim[4], Zulfakar[5], Hidayat Joni Mursyid[6], Imam Maksum Al Maliki[7]
[1,2,3,4,5] Faculty of Education and Psychology, Universitas Pendidikan Mandalika, West Nusa Tenggara, Indonesia
[6,7] MAN Insan Cendekia East Lombok, West Nusa Tenggara
*Corresponding author email: muhammad.iqbal@undikma.ac.id

ABSTRACT
This study examines factors associated with student-perceived research quality among senior high school students at MAN Insan Cendekia Lombok Timur, Indonesia. Research quality was measured through a 10-item self-perception instrument demonstrating excellent psychometric properties with high internal consistency (Cronbach's alpha = .863) and adequate item-total correlations (.381-.706). Using convenience sampling, 67 students participated in the study. Data were collected through Google Forms and analyzed using descriptive statistics and chi-square analysis with Monte Carlo simulation. Results indicated that students' perceived research quality was predominantly in the moderate category (47.8%), with mean score of 77.34 (SD = 10.75). Chi-square analyses revealed no statistically significant associations between perceived research quality categories and any of the eleven student characteristics examined, including gender (chi-square = 5.699, p = .058), grade level (chi-square = 2.371, p = .306), age, monthly allowance, subject preferences, school status, school type, and academic specialization. These non-significant findings are interpreted through the lens of social cognitive theory and research skill development frameworks, suggesting that research literacy as an acquired competency through structured learning may transcend demographic and academic boundaries when educational environments provide equitable learning opportunities. Practical recommendations for enhancing research literacy programs in secondary education are discussed.

Keywords:
Research literacy; categorical analysis; senior high school; Islamic boarding school

DOI. https://doi.org/10.56442/ijble.v7i1.1324

INTRODUCTION

Research literacy has emerged as a fundamental competency in 21st-century education, encompassing the abilities to formulate research questions, design appropriate methodologies, analyze data, and communicate findings effectively (Willison & O'Regan, 2007; Firdaus et al., 2021). The Partnership for 21st Century Learning (P21) framework identifies research skills as integral to the broader category of information literacy, which students must develop to succeed in higher education and the contemporary workforce (Battelle for Kids, 2019). In the Indonesian context, the implementation of the Merdeka Curriculum emphasizes student-centered, inquiry-based learning approaches that position research activities as essential components of the educational process (Kemendikbud, 2022; Rahayu et al., 2022).

Madrasah Aliyah Negeri Insan Cendekia (MAN IC) represents Indonesia's premier Islamic boarding school system, established under the Ministry of Religious Affairs to nurture academically gifted students through an integrated curriculum

combining Islamic studies with rigorous science and social science education (Kemenag, 2020; Suprapto, 2021). As elite educational institutions, MAN IC schools implement research-based learning programs requiring students to conduct independent research projects, making the development of research competencies a critical educational outcome (Azra, 2015; Lukens-Bull, 2019).

Understanding how students perceive their own research quality provides valuable insights for educators designing instructional interventions. Self-perception of competence, grounded in Bandura's (1997) social cognitive theory, influences students' motivation, effort, and persistence in learning activities. Students with higher self-efficacy in research are more likely to engage in challenging research tasks and persist through difficulties (Pajares, 2005; Schunk & Pajares, 2009). Conversely, inaccurate self-perceptions can impede effective learning and skill development (Dunning et al., 2004; Kruger & Dunning, 1999).

Previous research has extensively examined research competencies among university students (Healey & Jenkins, 2009; Brew & Mantai, 2017; Walkington, 2015), yet comparatively limited attention has been directed toward understanding research skill development and self-perceptions among secondary school students. This gap is particularly notable in the Indonesian context, where senior high school students increasingly engage in research activities as part of curricular requirements (Iqbal & Irfan, 2023; Mulyadi et al., 2022).

Several factors have been hypothesized to influence students' research competencies and self-perceptions. Demographic characteristics including gender have shown mixed results in prior studies, with some research indicating gender differences in research self-efficacy (Pajares, 2005; Huang, 2013) while others find no significant differences (Schunk & Pajares, 2009). Socioeconomic status, often proxied by family income or allowance, may affect access to educational resources and thereby influence research skill development (Sirin, 2005; Bradley & Corwyn, 2002). Academic factors such as grade level, subject preferences, and disciplinary specialization may also play significant roles (Healey & Jenkins, 2009; Brew, 2013).

The theoretical framework guiding this study integrates Bandura's (1997) social cognitive theory with Willison and O'Regan's (2007) Research Skill Development (RSD) framework. Social cognitive theory posits that self-efficacy beliefs are formed through mastery experiences, vicarious experiences, social persuasion, and physiological states. The RSD framework conceptualizes research skills as developmental competencies that can be systematically cultivated through appropriately scaffolded educational experiences. Together, these frameworks suggest that research literacy, as an acquired competency through structured learning processes, may be relatively independent of demographic characteristics when educational environments provide equitable learning opportunities.

This study addresses the research gap by examining the distribution of student-perceived research quality and analyzing associations between various demographic and academic characteristics with perceived research quality categories among MAN IC students. Specifically, the research questions guiding this study are: (1) What is the distribution of student-perceived research quality levels among MAN IC students? (2) What are the demographic and academic profiles of students across different research quality categories? and (3) Are there significant associations between student characteristics and perceived research quality categories?

METHOD

This study employed a quantitative cross-sectional survey design with a categorical analysis approach and was conducted at MAN Insan Cendekia Lombok Timur, West Nusa Tenggara, Indonesia. Using convenience sampling, a total of 67 students participated, consisting of students from grades X–XI (n = 16; 23.9%) and grade XII (n = 51; 76.1%). The sample comprised 48 female students (71.6%) and 19 male students (28.4%), with ages ranging from 15 to 18 years, predominantly 17 years old (58.2%). In terms of educational background, 36 participants (53.7%) graduated from public schools and 31 (46.3%) from private schools. Data were collected during the 2024/2025 academic year through an online questionnaire administered via Google Forms. Eleven categorical independent variables were examined, including gender, grade level, age, monthly allowance, subject preferences and difficulties, prior school status and type, and academic specialization at MAN Insan Cendekia.

The dependent variable was perceived research quality, defined as students' self-assessment of the quality of their research work. This construct was measured using a 10-item self-report instrument developed to capture five dimensions: clarity of problem formulation, appropriateness of methodology, quality of analysis and discussion, accuracy of references and data usage, and adherence to scientific writing format. Responses were rated on a five-point Likert scale, with three items reverse-coded. Content validity was confirmed through expert judgment by three faculty members specializing in educational research methodology, while construct validity was supported by corrected item–total correlations ranging from .381 to .706, exceeding the recommended minimum threshold. Reliability analysis yielded a Cronbach's alpha of .863, indicating excellent internal consistency. Total scores were converted to a 100-point scale and classified into low, moderate, and high categories of perceived research quality. Data analysis involved descriptive statistics and chi-square tests of independence, supplemented by Fisher–Freeman–Halton Exact Tests with Monte Carlo simulation where necessary, and effect sizes were assessed using Cramer's V. All statistical analyses were performed using IBM SPSS Statistics version 26 with a significance level of .05.

RESULTS AND DISCUSSION

1. Descriptive Statistics of Perceived Research Quality

Table 2 presents the descriptive statistics for perceived research quality scores. The mean score of 77.34 (SD = 10.75) indicates that students generally perceived their research quality positively. The distribution demonstrated adequate normality with skewness of .081 and kurtosis of -.538, both well within the acceptable range (George & Mallery, 2019).

Table 2. Descriptive Statistics of Perceived Research Quality (N = 67)

Statistic	Value
Mean	77.34
Standard Deviation	10.750
Mode	76 (multiple modes exist)
Minimum	54
Maximum	100
Range	46
Skewness (SE)	.081 (.293)
Kurtosis (SE)	-.538 (.578)

When categorized into three quality levels, the majority of students (32; 47.8%) perceived their research quality as moderate, followed by 18 students (26.9%) in the low category and 17 students (25.4%) in the high category. This distribution suggests that while most students have developed basic research competencies, there remains substantial room for improvement.

2. Demographic Profile by Grade Level and Gender

Tables 3-8 present cross-tabulations of student characteristics by grade level and gender, providing detailed demographic profiles of the sample.

Table 3. Cross-tabulation of Gender and Monthly Allowance by Grade Level

Grade	Gender	100-200K	201-400K	401-600K	>600K	Total
X-XI	Female	2	4	3	3	12
	Male	0	4	0	0	4
	Subtotal	2	8	3	3	16
XII	Female	3	14	16	3	36
	Male	1	7	7	0	15
	Subtotal	4	21	23	3	51
Total		6	29	26	6	67

Table 3 reveals that the majority of students (43.3%) had monthly allowances in the Rp. 201,000-400,000 range, followed by Rp. 401,000-600,000 (38.8%). Notably, all students with allowances exceeding Rp. 600,000 were female, while male students were concentrated in the middle allowance categories.

Table 4. Cross-tabulation of Gender and Most Preferred Subject by Grade Level

Grade	Gender	Exact Sciences	Non-exact Sciences	Total
X-XI	Female	9	3	12
	Male	4	0	4
	Subtotal	13	3	16
XII	Female	21	15	36
	Male	8	7	15
	Subtotal	29	22	51
Total		42 (62.7%)	25 (37.3%)	67

The majority of students (62.7%) indicated preference for exact science subjects (mathematics, physics, chemistry, biology). This preference was particularly pronounced among grade X-XI males, all of whom preferred exact sciences. The distribution aligns with MAN IC's emphasis on science and technology education.

Table 5. Cross-tabulation of Gender and Most Difficult Subject by Grade Level

Grade	Gender	Exact Sciences	Non-exact Sciences	Total
X-XI	Female	12	0	12
	Male	3	1	4
	Subtotal	15	1	16
XII	Female	31	5	36
	Male	13	2	15
	Subtotal	44	7	51
Total		59 (88.1%)	8 (11.9%)	67

An overwhelming majority (88.1%) identified exact science subjects as most difficult. This finding, combined with the preference data in Table 4, suggests an interesting paradox: students prefer subjects they find challenging—consistent with MAN IC's academically rigorous environment, which attracts students who embrace intellectual challenges (Azra, 2015).

Table 6. Cross-tabulation of Gender and Previous School Status by Grade Level

Grade	Gender	Public	Private	Total
X-XI	Female	6	6	12
	Male	1	3	4
Subtotal		7	9	16
XII	Female	23	13	36
	Male	6	9	15
Subtotal		29	22	51
Total		36 (53.7%)	31 (46.3%)	67

Students came from relatively balanced backgrounds in terms of prior school status, with slightly more from public institutions (53.7%). Male students were more likely to come from private schools (63.2%) than females (39.6%), potentially reflecting different educational pathways to MAN IC admission.

Table 7. Cross-tabulation of Gender and Previous School Type by Grade Level

Grade	Gender	Boarding School	MTs	SMP	Total
X-XI	Female	5	5	2	12
	Male	1	2	1	4
	Subtotal	6	7	3	16
XII	Female	6	20	10	36
	Male	6	5	4	15
	Subtotal	12	25	14	51
Total		18 (26.9%)	32 (47.8%)	17 (25.4%)	67

Nearly half of students (47.8%) came from MTs (Madrasah Tsanawiyah) backgrounds, reflecting the natural educational progression within the Islamic education system. Boarding school graduates constituted 26.9% and regular SMP graduates 25.4%. Female students were more likely to come from MTs (52.1%) compared to males (36.8%).

Table 8. Cross-tabulation of Gender and Academic Specialization by Grade Level

Grade	Gender	Not Assigned	IPA	IPA+IPS	IPS	Total
X-XI	Female	4	5	3	-	12
	Male	1	3	0	-	4
	Subtotal	5	8	3	-	16
XII	Female	1	11	18	6	36
	Male	0	4	10	1	15
	Subtotal	1	15	28	7	51
Total		6 (9.0%)	23 (34.3%)	31 (46.3%)	7 (10.4%)	67

The largest group (46.3%) was enrolled in the combined IPA+IPS track, reflecting MAN IC's integrated curriculum approach. Pure science track (IPA) enrolled 34.3% while social sciences (IPS) enrolled 10.4%. Students in grades X-XI who had not yet been assigned specialization constituted 9.0% of the sample.

3. Chi-Square Analysis of Associations with Perceived Research Quality

Table 9. Cross-tabulation of Gender and Perceived Research Quality Categories

Gender	Low	Moderate	High	Total
Female	12 (66.7%)	27 (84.4%)	9 (52.9%)	48 (71.6%)
Male	6 (33.3%)	5 (15.6%)	8 (47.1%)	19 (28.4%)
Total	18 (100%)	32 (100%)	17 (100%)	67 (100%)

Chi-square = 5.699, df = 2, p = .058; Fisher-Freeman-Halton p = .054; Cramer's V = .292

The association between gender and perceived research quality approached but did not reach statistical significance (p = .058). Descriptively, females showed concentration in the moderate category (84.4% of moderate-quality group were

female) while males demonstrated a more bipolar distribution with relatively higher proportions in both low (33.3%) and high (47.1%) categories. The effect size (Cramer's V = .292) indicated a small-to-medium effect that may warrant investigation with larger samples.

Table 10. Cross-tabulation of Grade Level and Perceived Research Quality Categories

Grade Level	Low	Moderate	High	Total
X-XI	6 (33.3%)	5 (15.6%)	5 (29.4%)	16 (23.9%)
XII	12 (66.7%)	27 (84.4%)	12 (70.6%)	51 (76.1%)
Total	18 (100%)	32 (100%)	17 (100%)	67 (100%)

Chi-square = 2.371, df = 2, p = .306; Fisher-Freeman-Halton p = .284; Cramer's V = .188

Table 11. Summary of Chi-Square Tests for All Independent Variables

Variable	Chi-square	df	p	FFH p	V
Gender	5.699	2	.058	.054	.292
Grade Level	2.371	2	.306	.284	.188
Age	4.660	6	.588	.520	.186
Monthly Allowance	5.163	6	.523	.557	.196
Most Preferred Subject	0.846	2	.655	.716	.112
Easiest Subject	1.837	4	.766	.858	.117
Least Preferred Subject	1.980	4	.739	.723	.122
Most Difficult Subject	0.022	2	.989	1.000	.018
Previous School Status	1.919	2	.383	.390	.169
Previous School Type	3.011	4	.556	.579	.150
Academic Specialization	2.479	6	.871	.877	.136

Note: FFH = Fisher-Freeman-Halton Exact Test; V = Cramer's V; No associations significant at alpha = .05

Discussion

The findings of this study reveal important insights regarding perceived research quality and the absence of significant associations with demographic and academic characteristics among MAN IC students. These results warrant careful interpretation through multiple theoretical perspectives.

1. Research Literacy as an Acquired Competency

The non-significant associations across all eleven variables can be understood through the lens of research literacy as a learned competency rather than an innate characteristic tied to demographic backgrounds. According to Willison and O'Regan's (2007) Research Skill Development (RSD) framework, research competencies are developmental capabilities that can be systematically cultivated through structured educational experiences. This framework posits that research skills exist on a continuum from 'prescribed research' where students follow explicit guidance, to 'unbounded research' characterized by autonomous inquiry (Willison & O'Regan, 2007; Torres & Jansen, 2016).

From this perspective, the homogeneous distribution of perceived research quality across student subgroups at MAN IC suggests that the school's research curriculum may effectively develop these competencies regardless of students' prior backgrounds or demographic characteristics. This interpretation aligns with Vygotsky's (1978) sociocultural theory, which emphasizes that cognitive development—including research skills—is fundamentally shaped by social

interaction and cultural tools provided in the learning environment rather than predetermined by individual characteristics (Lantolf & Thorne, 2006).

2. The Equalizing Effect of Structured Learning Environments

The boarding school context of MAN IC provides a particularly relevant lens for understanding these findings. In boarding schools, students experience relatively uniform educational inputs—the same teachers, facilities, library resources, and research supervision—regardless of their family backgrounds (Martin et al., 2014; Bass, 2014). This environmental consistency may attenuate the effects of socioeconomic and demographic differences that typically influence educational outcomes in non-residential settings.

The non-significant association between monthly allowance and perceived research quality ($p = .523$) supports this interpretation. Unlike day schools where family economic resources directly affect access to books, internet, tutoring, and learning materials, boarding school environments provide equitable access to educational resources (Coleman, 2019; Cookson & Persell, 1985). Students from lower-income families at MAN IC have access to the same research facilities, libraries, and mentorship as their more affluent peers, potentially neutralizing socioeconomic effects on research skill development.

3. Gender and Research Self-Efficacy

The marginally non-significant gender effect ($p = .058$) merits attention. While traditional research has documented gender gaps in STEM self-efficacy favoring males (Huang, 2013; Pajares, 2005), our findings suggest these gaps may be closing in contemporary Indonesian Islamic education contexts. The gender-balanced research programs at MAN IC, combined with strong female representation (71.6% of sample), may reflect broader cultural shifts in Indonesian education emphasizing female academic achievement (Rahayu et al., 2022; Parker & Raihani, 2011).

Interestingly, the descriptive pattern showed males with higher proportions in both low and high categories, while females concentrated in the moderate category. This could reflect different calibration patterns in self-assessment, with males potentially displaying greater overconfidence or underconfidence while females demonstrate more accurate self-evaluation (Kruger & Dunning, 1999; Dunning, 2011). However, such interpretations require caution given the non-significant overall association.

4. Academic Specialization and Cross-Disciplinary Research Skills

The absence of association between academic specialization and perceived research quality ($p = .871$) suggests that research skill development at MAN IC transcends disciplinary boundaries. This finding aligns with arguments that core research competencies—problem formulation, methodology selection, analysis, and scientific writing—represent transferable skills applicable across domains (Brew, 2013; Healey & Jenkins, 2009). The integrated IPA+IPS curriculum track, which enrolled the largest proportion of students (46.3%), may particularly contribute to developing discipline-general research competencies.

This cross-disciplinary homogeneity contrasts with findings at the university level, where disciplinary cultures create distinct research practices and self-perceptions (Becher & Trowler, 2001). Secondary school students may not yet have developed strong disciplinary identities that differentiate their research approaches,

representing a potential advantage for developing foundational, transferable research skills before specialization narrows their methodological repertoires.

5. Prior Educational Background

The non-significant effects of previous school status (public/private) and type (boarding school/MTs/SMP) suggest that MAN IC's educational program effectively brings students from diverse backgrounds to comparable research competency levels. This 'leveling up' effect may reflect the rigorous selection process for MAN IC admission combined with intensive academic support provided upon enrollment (Suprapto, 2021; Lukens-Bull, 2019). Students selected for MAN IC, regardless of prior school type, share high academic potential that responds similarly to the school's research training programs.

6. Theoretical Implications

These findings extend Bandura's (1997) social cognitive theory by demonstrating that mastery experiences in research—the most powerful source of self-efficacy—may be effectively provided through structured educational programs regardless of students' demographic backgrounds. When schools create environments providing equal access to research experiences, mentorship, and resources, demographic disparities in research self-efficacy may diminish substantially.

Furthermore, the results support Lave and Wenger's (1991) situated learning theory, which posits that learning occurs through participation in communities of practice. MAN IC functions as a research-oriented community where students, regardless of background, are socialized into research practices through legitimate peripheral participation in academic inquiry. The boarding school environment intensifies this socialization, potentially explaining the demographic-independent development of research competencies.

7. Practical Recommendations for Enhancing Research Literacy

Given the non-significant associations between student characteristics and research quality, coupled with the concentration of students in the moderate category (47.8%), the following practical recommendations are offered for schools seeking to enhance student research literacy:

a. Implement Universal Research Enhancement Programs. Since demographic and academic backgrounds did not significantly differentiate research quality perceptions, schools should focus on universal interventions rather than targeted programs for specific subgroups. Research methodology courses, scientific writing workshops, and mentored inquiry projects should be designed as inclusive experiences benefiting all students equally (Walkington, 2015; Healey et al., 2014).
b. Elevate Students from Moderate to High Categories. With 47.8% of students in the moderate category, targeted efforts should focus on transitioning these students to high-quality research performance. This may involve advanced research seminars, opportunities for publication in student journals, research competitions, and mentorship from university researchers (Brew & Mantai, 2017; Linn et al., 2015).
c. Strengthen Research Methodology Curriculum. The instrument items revealing lower item-total correlations (Y6, Y9) suggest that discussion/analysis skills and adherence to writing conventions may require additional curricular attention. Explicit instruction in synthesizing findings with theory (Y5) and structured academic writing (Y9, Y10) should be emphasized (Wingate, 2012; Lea & Street, 1998).

d. Provide Scaffolded Research Experiences. Following the RSD framework (Willison & O'Regan, 2007), schools should design progressively autonomous research experiences. Beginning with structured research exercises in early grades, students should gradually progress toward independent inquiry by grade XII. This scaffolding ensures that research competencies develop systematically regardless of students' initial skill levels.
e. Enhance Access to Quality Research Resources. Item Y7 (credible references) showed strong correlation with overall research quality. Schools should invest in digital library access, research databases, and training on identifying and utilizing scholarly sources. Partnerships with universities can provide access to academic journals and research expertise (Auclair et al., 2023).
f. Develop Teacher Research Mentorship Capacity. Teachers serve as primary research mentors for secondary school students. Professional development programs should enhance teachers' own research skills and their capacity to supervise student research projects effectively (Toom et al., 2010; Van der Linden et al., 2015).
g. Create Peer Research Communities. Peer learning can supplement formal instruction in research skills. Research clubs, peer review sessions, and collaborative projects enable students to learn from each other's experiences and develop research identities within supportive communities (Lave & Wenger, 1991; Brown et al., 2014).
h. Address the 26.9% in Low Category. While the focus should not be on demographic-based targeting, students identifying with low perceived research quality require intervention. Diagnostic assessments can identify specific skill gaps (problem formulation, methodology, analysis, writing) for individualized support through tutoring, workshops, or extended mentorship.

4. Limitations and Future Research

Several limitations should be acknowledged. First, the convenience sampling limits generalizability to other MAN IC schools or Indonesian secondary schools more broadly. Second, the cross-sectional design prevents causal inference; longitudinal studies tracking the development of research skills over time would provide stronger evidence. Third, self-reported perceived quality may differ from expert-assessed research quality; future studies should incorporate objective assessments alongside self-reports. Fourth, the relatively small sample size (N = 67) limited statistical power; some marginally non-significant effects (e.g., gender, $p = .058$) might achieve significance with larger samples. Fifth, social desirability bias may have influenced self-reports, particularly in a boarding school environment where students interact closely with teachers who might access survey results.

Future research should address these limitations through multi-site studies with probability sampling, longitudinal designs tracking research skill development trajectories, mixed-methods approaches incorporating expert assessments of actual research products, and larger samples enabling detection of smaller effect sizes. Additionally, qualitative inquiry into students' research experiences could illuminate the processes through which research competencies develop in structured educational environments.

CONCLUSION

This study examined factors associated with student-perceived research quality among 67 students at MAN Insan Cendekia Lombok Timur. The reliable 10-item instrument (alpha = .863) revealed that perceived research quality was predominantly moderate (47.8%), with mean score of 77.34 (SD = 10.75). Chi-square analyses demonstrated no statistically significant associations between perceived research quality categories and any of the eleven student characteristics examined: gender, grade level, age, monthly allowance, subject preferences (most preferred, easiest, least preferred, most difficult), previous school status, previous school type, and academic specialization.

These findings support the theoretical proposition that research literacy, as an acquired competency through structured learning processes, may transcend demographic and academic boundaries when educational environments provide equitable access to research experiences and resources. The boarding school context of MAN IC likely contributes to this equalization effect by providing uniform educational inputs regardless of students' prior backgrounds.

For educational practice, these results suggest that research literacy enhancement programs should adopt universal rather than demographically targeted approaches. The concentration of students in the moderate category indicates substantial room for improvement, warranting investment in strengthened research-methodology curricula, scaffolded research experiences, enhanced access to resources, and teacher mentorship capacity-building. As research competencies become increasingly essential for 21st-century success, secondary schools bear significant responsibility for establishing foundational research literacy that prepares students for higher education and beyond.

Acknowledgment

The authors express sincere gratitude to the students, teachers, and administrators of MAN Insan Cendekia Lombok Timur for their participation and support of this research. We also acknowledge the Faculty of Education and Psychology, Universitas Pendidikan Mandalika, for institutional support throughout the research process.

Reference

Auclair, B., Riopel, M., & Potvin, P. (2023). A systematic review of research on high school students' research skills. Journal of Research in Science Teaching, 60(3), 567-598.

Azra, A. (2015). Genealogy of Indonesian Islamic education: Roles in the modernization of Muslim society. Heritage of Nusantara: International Journal of Religious Literature and Heritage, 4(1), 85-114.

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

Bass, L. R. (2014). Boarding schools and capital benefits: Implications for urban school reform. The Journal of Educational Research, 107(1), 16-35.

Battelle for Kids. (2019). Framework for 21st century learning. Partnership for 21st Century Learning.

Becher, T., & Trowler, P. R. (2001). Academic tribes and territories: Intellectual enquiry and the culture of disciplines (2nd ed.). Open University Press.

Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. Annual Review of Psychology, 53(1), 371-399.

Brew, A. (2013). Understanding the scope of undergraduate research: A framework for curricular and pedagogical decision-making. Higher Education, 66(5), 603-618.

Brew, A., & Mantai, L. (2017). Academics' perceptions of the challenges and barriers to implementing research-based experiences for undergraduates. Teaching in Higher Education, 22(5), 551-568.

Brown, J., Collins, A., & Duguid, P. (2014). Situated cognition and the culture of learning. Educational Researcher, 18(1), 32-42.

Coleman, J. S. (2019). Equality of educational opportunity. In A. R. Sadovnik (Ed.), Sociology of education: A critical reader (4th ed., pp. 135-150). Routledge.

Cookson, P. W., & Persell, C. H. (1985). Preparing for power: America's elite boarding schools. Basic Books.

DeVellis, R. F. (2017). Scale development: Theory and applications (4th ed.). SAGE Publications.

Dunning, D. (2011). The Dunning-Kruger effect: On being ignorant of one's own ignorance. In J. M. Olson & M. P. Zanna (Eds.), Advances in experimental social psychology (Vol. 44, pp. 247-296). Academic Press.

Dunning, D., Johnson, K., Ehrlinger, J., & Kruger, J. (2004). Why people fail to recognize their own incompetence. Current Directions in Psychological Science, 12(3), 83-87.

Firdaus, F., Kailani, I., Bakar, M. N., & Bakry, B. (2021). Developing critical thinking skills of students in mathematics learning. Journal of Educational and Social Research, 11(4), 114-125.

George, D., & Mallery, P. (2019). IBM SPSS Statistics 26 step by step: A simple guide and reference (16th ed.). Routledge.

Healey, M., & Jenkins, A. (2009). Developing undergraduate research and inquiry. Higher Education Academy.

Healey, M., Jenkins, A., & Lea, J. (2014). Developing research-based curricula in college-based higher education. Higher Education Academy.

Huang, C. (2013). Gender differences in academic self-efficacy: A meta-analysis. European Journal of Psychology of Education, 28(1), 1-35.

Iqbal, M., & Irfan, A. Z. (2023). Factors influencing research competencies among Indonesian students: A systematic review. Indonesian Journal of Educational Research, 8(2), 45-62.

Kemendikbud. (2022). Kurikulum Merdeka: Panduan implementasi untuk satuan pendidikan. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia.

Kemenag. (2020). Pedoman penyelenggaraan Madrasah Aliyah Negeri Insan Cendekia. Kementerian Agama Republik Indonesia.

Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. Journal of Personality and Social Psychology, 77(6), 1121-1134.

Lantolf, J. P., & Thorne, S. L. (2006). Sociocultural theory and the genesis of second language development. Oxford University Press.

Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation. Cambridge University Press.

Lea, M. R., & Street, B. V. (1998). Student writing in higher education: An academic literacies approach. Studies in Higher Education, 23(2), 157-172.
Linn, M. C., Palmer, E., Baranger, A., Gerard, E., & Stone, E. (2015). Undergraduate research experiences: Impacts and opportunities. Science, 347(6222), 1261757.
Lukens-Bull, R. (2019). Madrasa by any other name: Pondok, pesantren, and Islamic schools in Indonesia. Journal of Indonesian Islam, 4(1), 1-21.
Martin, A. J., Papworth, B., Ginns, P., & Liem, G. A. D. (2014). Boarding school, academic motivation and engagement, and psychological well-being. American Educational Research Journal, 51(5), 1007-1049.
Mulyadi, M., Wijayanti, W., & Rahman, A. (2022). Academic factors affecting research skills development in senior high school students. Journal of Education and Learning, 16(1), 78-89.
Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (3rd ed.). McGraw-Hill.
Pajares, F. (2005). Gender differences in mathematics self-efficacy beliefs. In A. M. Gallagher & J. C. Kaufman (Eds.), Gender differences in mathematics (pp. 294-315). Cambridge University Press.
Parker, L., & Raihani, R. (2011). Democratizing Indonesia through education? Community participation in Islamic schooling. Educational Management Administration & Leadership, 39(6), 712-732.
Rahayu, R., Iskandar, S., & Abidin, Y. (2022). Implementation of independent learning-independent campus policy. Journal of Curriculum and Teaching, 11(4), 142-153.
Schunk, D. H., & Pajares, F. (2009). Self-efficacy theory. In K. R. Wentzel & A. Wigfield (Eds.), Handbook of motivation at school (pp. 35-53). Routledge.
Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. Review of Educational Research, 75(3), 417-453.
Suprapto, N. (2021). Science education in Indonesia: A systematic review of literature. International Journal of Science Education, 43(7), 1133-1155.
Toom, A., et al. (2010). Experiences of a research-based approach to teacher education. European Journal of Education, 45(2), 331-344.
Torres, L., & Jansen, S. (2016). From students to researchers: Developing undergraduate research competencies. International Journal of Teaching and Learning in Higher Education, 28(3), 411-428.
Van der Linden, W., et al. (2015). The development of student teachers' research knowledge, beliefs and attitude. Journal of Education for Teaching, 41(1), 4-18.
Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.
Walkington, H. (2015). Students as researchers: Supporting undergraduate research in the disciplines in higher education. Higher Education Academy.
Willison, J., & O'Regan, K. (2007). Commonly known, commonly not known, totally unknown: A framework for students becoming researchers. Higher Education Research & Development, 26(4), 393-409.
Wingate, U. (2012). Using academic literacies and genre-based models for academic writing instruction. Journal of English for Academic Purposes, 11(1), 26-37.