

Research Article

How Do Grade 12 Students' Perceptions of Research Relate to Their Subject Performance? An Analysis Using the Revised-Attitudes Toward Research Scale (R-ATR)

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<https://doi.org/10.59652/jetm.v3i3.603>

Abstract: This study investigated students' perceptions of research and their performance in Practical Re-search 2 among Grade 12 students in one of the private schools in Iloilo for the School Year 2024–2025. Using a descriptive-correlational design, the research employed the Revised-Attitudes Toward Research Scale (R-ATR) to assess three core dimensions: perceived usefulness, anxiety related to research, and positive predispositions. A total of 108 students participated through convenience sampling. The findings revealed that students who viewed research as valuable and approached it more positively tended to receive higher grades, showing a statistically significant relationship between students' subject grades and research usefulness and positive predispositions. Positive pre-dispositions and the usefulness of research also showed a strong correlation, indicating that people who valued research were more likely to have positive attitudes toward it. Also, sex did not produce significant differences across the three attitude dimensions. In the meantime, a moderately negative correlation between anxiety and positive predispositions was found, indicating that students who kept a positive attitude were less anxious. While subject performance was not directly impacted by anxiety alone, students who were more enthusiastic and valued research generally performed better. Based on these findings, it is clear that to improve student engagement and academic performance, learning environments must foster positive attitudes toward research, lower anxiety, and emphasize the usefulness of research.

Keywords: attitudes; Grade 12 students; subject performance; senior high school

Received: May 15, 2025

Accepted: August 5, 2025

Published: August 26, 2025



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1. Introduction

Research has become an essential part of the learning process, not only enhancing academic development but also cultivating critical thinking and problem-solving skills among students (Basu, 2020; Susiani et al., 2018). As learners move through the educational system, they are increasingly expected to engage in scholarly inquiry and apply research methodologies. In the Philippine senior high school curriculum, this expectation is formalized through the inclusion of research subjects such as Practical Research 1 (Qualitative Research), Practical Research 2 (Quantitative Research), and Research Project (Inquiries, Investigation, and Immersion), highlighting the Department of Education's emphasis on inquiry-based learning (Bucar, 2022). For Grade 12 students, producing a research paper is more than a capstone requirement for Practical Research 2 – it is a meaningful opportunity to explore relevant topics and contribute insights to real-world issues (Serrano, 2022).

Despite the strong emphasis placed on research as a key component of academic development, many students continue to face considerable obstacles throughout the research process. These challenges range from minimal interaction or consultation with research advisers, limited time for conducting studies, and difficulty accessing reliable online resources, to confusion in selecting appropriate tools or questionnaires, difficulty reaching respondents, and uncertainty in organizing and writing the final report (Haleem & Asghar, 2023). These difficulties often result in decreased enthusiasm and lower quality outputs. Moreover, students' attitudes toward research can vary greatly – some approach the task with enthusiasm and curiosity, while others find it overwhelming and stressful. The experience is not uniform.

As Ocbian and Gamba (2015) highlighted in their study at Sorsogon State College, graduate students struggled with their research not only due to academic demands but also because of personal and institutional factors such as teaching overloads, lack of internal drive, and financial limitations. These findings suggest that students' perceptions and experiences of research are influenced by a combination of external pressures and individual dispositions, making it all the more important to understand their overall attitude toward the process.

Cooper, Eddy, and Brownell (2023) point out a gap in understanding how research anxiety affects students with different GPA levels. While anxiety is usually linked to lower grades, high-GPA students in research may handle it differently, possibly due to higher expectations. It is unclear how anxiety impacts students with lower GPAs in research. More research is needed to explore this and find ways to help all students manage research-related anxiety. Building on this, Limgas (2024) found that senior high school teachers help students build research skills by giving extra technical support. The study suggests reinforcing composition writing in the curriculum to further strengthen students' research abilities.

For Grade 12 students, particularly in Jesuit institutions, research is more than just a classroom requirement – it becomes a means of personal and intellectual formation. Rooted in the school's mission to promote critical thinking, social responsibility, and reflective practice, research serves as a pathway for students to engage with real-world concerns in meaningful ways. The Ignatian values of *cura personalis* (care for the whole person), discernment, and commitment to the common good are embedded in how research is approached. As Ross (2022) highlights, the intentional integration of Ignatian spirituality within an action research paradigm fosters a reflective and transformative process, benefiting both researchers and participants through deeper learning and tangible outcomes. In this context, research is not merely academic; it is also spiritual and ethical, challenging students to think critically, act justly, and contribute thoughtfully to their communities.

However, students' attitudes toward research can significantly impact their motivation and success in conducting it. Factors such as perceived difficulty, relevance, and self-efficacy could shape their perspectives. According to Lumanta (2023), students commonly struggle with finding related studies, identifying authors and references, and gathering data, which require careful reading and effort. These challenges significantly affect academic performance, indicating the need for more substantial support in these areas to help students succeed in research.

Given these challenges and the central role of research in the curriculum, understanding students' attitudes toward research becomes critical. The Revised-Attitudes Toward Research Scale (R-ATR) has been widely used to gauge students' attitudes, providing insights into how they view research regarding its value, difficulty, and enjoyment.

In the context of a Jesuit education, it becomes pertinent to understand how Grade 12 students perceive research, not only as an academic task but also as a reflection of the values imparted to them through their formation. Jesuit schools emphasize intellectual rigor, reflective learning, and a commitment to the common good. These principles suggest that students are not just taught to comply with academic requirements, but to internalize research as a meaningful process rooted in inquiry, discernment, and social responsibility. And it is important to understand whether and how such values influence students' attitudes toward research.

Therefore, the findings aim to offer insights into how research is experienced and understood in a Jesuit school setting and to help inform strategies that could strengthen research instruction. This descriptive-correlational study aimed to explore how Grade 12 students in one of the private schools in Iloilo for the School Year 2024-2025 perceive research and how these perceptions correlate with their subject performance.

Specifically, the study aimed to: (1) determine students' attitudes toward research in terms of perceived usefulness, research anxiety, and positive research disposition using the R-ATR; (2) determine if there is a significant difference in students' attitudes toward research; and (3) examine the relationship between students' attitudes toward research and their academic performance in Practical Research 2. By identifying these relationships, this study sought to provide insights for teachers and administrators in senior high school that could support strategies for enhancing students' research skills and academic success.

2. Materials and Methods

2.1. Research Design

This study utilized a quantitative approach through a descriptive-correlational research design to investigate Grade 12 students' attitudes toward research and how these attitudes relate to their academic performance in the subject. A descriptive-correlational design is suited for identifying variables and assessing the strength and direction of relationships between them (Apricia et al., 2022). The descriptive component of the study focused on measuring students' levels of agreement across key dimensions of research attitudes – usefulness, anxiety, and positive predisposition. Meanwhile, the correlational component examined whether these attitudes had a significant connection to students' actual performance in their research subject and their sex, offering insights into how perception might influence academic outcomes.

2.2. Participants

This study engaged a total of 108 Grade 12 students enrolled in a private senior high school in Iloilo during the academic year 2024-2025. The participants were selected through convenience sampling, a non-probability technique wherein data is collected from individuals who are easily accessible and willing to participate. This method was chosen due to logistical constraints such as limited time, availability of students, and access to the broader population. While convenience sampling may pose certain limitations in terms of representativeness and generalizability of results, it is often considered acceptable in preliminary or exploratory research where the primary aim is to identify patterns or relationships rather than make broad generalizations. Some scholars (Hair et al., 2018; Memon et al., 2020) support the use of such sample sizes in initial studies, suggesting that a minimum of 100 respondents is sufficient to explore variables and detect correlations in educational research. Given these considerations, the sample size and selection method were deemed suitable for the objectives and scope of the present study.

2.3. Instruments

Data was collected using a Papanastasiou (2019) adapted research questionnaire to assess students' perceptions of research and their subject performance in Practical Research 2. Originally designed with a 7-point Likert scale, the instrument was adapted into a 6-point Likert scale to eliminate the neutral option and encourage respondents to take a more defined stance in their responses. This instrument consisted of 13 items, to measure the degree of agreement with each statement, where 6 corresponded to "Strongly agree" and 1 to "Strongly disagree." The instrument focused on three dimensions: research usefulness, anxiety toward research, and positive research predispositions. It was administered via Google Forms for convenience and ease of distribution. The results showed a Cronbach's alpha of 0.831 for research usefulness, 0.854 for anxiety, and 0.892 for positive research disposition, indicating strong internal consistency (table 1).

Table 1. R-ATR.

Factor	Number of items	Cronbach's Alpha
Research usefulness	4	0.831
Anxiety	5	0.854
Positive research predisposition	4	0.892

To interpret the responses on the attitude scale, the following descriptive range (table 2) was used for the 6-point Likert scale: 1.00–1.82 (Strongly disagree) indicate a strong rejection or complete disagreement with the statement; 1.83–2.66 (Disagree) reflect a general disagreement with the item, though less intense than strong disagreement; 2.67–3.50 (Partially disagree) suggest mild disagreement or uncertainty leaning towards a negative stance; 3.51–4.34 (Partially agree) represent a moderate level of agreement with some reservations; 4.35–5.18 (Agree) demonstrate a clear agreement with the statement; 5.19–6.00 (Strongly agree) reflect full or enthusiastic endorsement of the item. This interpretation guide was applied in analyzing the mean scores of participants' attitudes toward research to ensure consistency and clarity in reporting.

Table 2. Degree of agreement using the 6-point Likert scale.

Scale	Description
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6	Strongly Agree
5	Agree
4	Partially Agree
3	Partially Disagree
2	Disagree
1	Strongly disagree

Additionally, to interpret students' overall attitude toward research, their answers on the six-point Likert scale were used as the basis for interpretation (table 3). The level of agreement to each item helped determine how positive, neutral, or negative their attitude was toward each of the three areas measured – research usefulness, anxiety, and positive predispositions. For example, higher agreement showed a more positive attitude, while lower agreement reflected a more negative outlook. Responses in the middle range were seen as neutral.

Table 3. Interpretation of scale of means.

Scale of means	Description
5.19–6.00	Strongly agree
4.35–5.18	Agree
3.51–4.34	Partially agree
2.67–3.50	Partially disagree
1.83–2.66	Disagree
1.00–1.82	Strongly disagree

2.4. Data Collection Procedure

Participation was open to students who had access to the link, and there were no restrictions regarding time or setting, allowing them to complete the questionnaire at their own convenience. Prior to responding, participants were presented with a brief explanation of the study's purpose and scope. They were informed that their involvement was entirely voluntary, and that they could choose not to participate or withdraw at any time without facing any repercussions. The online format provided a flexible and accessible way for students to engage with the research, encouraging thoughtful and candid responses. Prior to distribution, the purpose and scope of the research were thoroughly explained, emphasizing that participation was entirely voluntary. Students were informed that they could decline or withdraw at any time without facing any academic or personal consequences.

To uphold ethical integrity, the study followed established protocols. All participants provided informed consent after being briefed on their rights and the confidentiality of their responses. For those under the age of legal consent, additional written permission was obtained from their parents or legal guardians. The school administration granted formal approval to conduct the study, affirming that the research aligned with institutional and educational guidelines.

Data privacy and participant protection were central throughout the research. No identifying information was attached to any completed survey, ensuring that responses remained anonymous. The information gathered was used exclusively for academic purposes related to the study and stored securely to prevent unauthorized access. By prioritizing informed consent, voluntary participation, and confidentiality, the study maintained ethical rigor and protected the welfare of all student respondents.

2.5. Data Analysis Procedure

The data analysis was carried out using Jamovi, a robust statistical software, to ensure the accuracy and reliability of the results and the conclusions drawn. Descriptive statistics, which organize and summarize data by describing relationships between variables within a sample or population (Kaur et al., 2018), were utilized to provide a clear overview of students' perceptions, attitudes, and behaviors toward research. This included calculating means, frequencies, and percentages. In addition, inferential statistics were applied to draw conclusions and make predictions based on the collected data (Beins & McCarthy, 2017). Specifically, correlational analysis using the Pearson Correlation Coefficient was conducted to examine the strength and direction of the relationship between students' attitudes toward research and their performance in the Practical Research subject.

3. Results

This section presents the results of the study on students' attitudes toward research and how these relate to their academic performance. The data were analyzed using descriptive statistics such as mean, frequency, and percentage, as well as inferential tests to check for relationships and differences between variables.

It includes the distribution of student grades, a summary of their attitudes toward research, and an analysis of whether these attitudes differ by sex. It also examines the connection between students' perceptions of research, such as its usefulness, their anxiety levels, and positive predispositions and their subject performance.

Table 4 displayed the distribution of student grades in Practical Research 2. Most students scored between 85 and 89, with the highest frequency observed at a grade of 87 (11.11%). Grades of 88 and 89 followed closely, accounting for 10.19% and 8.33%, respectively. Higher grades such as 94 and 96 were less common, each earned by only 3.70% of students. The lowest frequency was recorded for the grade of 82, with just one student (0.93%). These results suggest that a majority of the students performed at an average to above-average level.

Table 4. Grade distribution of the respondents.

Grade in Practical Research 2	Frequency	Percentage
96	4	3.70%
95	2	1.85%
94	4	3.70%
93	4	3.70%
92	5	4.63%
91	6	5.56%
90	8	7.41%
89	9	8.33%
88	11	10.19%
87	12	11.11%
86	6	5.56%
85	7	6.48%
84	7	6.48%
83	5	4.63%
82	1	0.93%
81	6	5.56%
79	4	3.70%

Table 5 summarized the descriptive statistics on students' attitudes toward research, categorized into three dimensions: research usefulness, anxiety, and positive predispositions. Research usefulness received the highest mean score of 4.73 (SD = 0.98), indicating a high positive attitude among students who generally acknowledged the relevance and value of research in their academic and professional development. On the other hand, the dimension of anxiety scored a mean of 4.22 (SD = 1.02), which falls under slightly high or neutral interpretation, suggesting that while some students experienced stress or nervousness related to research, it was not extreme or overwhelming. Lastly, positive research predispositions yielded a mean score of 3.72 (SD = 0.96), also interpreted as slightly high (neutral).

Table 5. Descriptive attitude of respondents towards research.

Attitudes towards research	Mean	Standard deviation
Research usefulness	4.73	0.98
Anxiety	4.22	1.02
Positive research predispositions	3.72	0.96

Sutherland (2018) emphasizes that involvement in research-related endeavors plays a significant role in shaping one's professional trajectory, often serving as a reliable indicator of future career advancement. Complementing this, some findings (Mydin et al., 2021) assert that engaging in collaborative research activities provides emerging scholars with meaningful opportunities to refine and expand their research competencies. These interactions not only

enhance technical proficiency but also help build confidence and adaptability within academic environments. Together, these findings support the idea that cultivating positive research attitudes and participation contributes not only to academic success but also to long-term professional development.

However, Campillan (2019) highlights that despite these positive dispositions, students often face various challenges throughout the research process. These include issues related to coordination, managing plagiarism concerns, time limitations, lack of collaborative support, personal matters, and other conflicts that hinder progress. These findings reinforce the importance of institutional support and structured guidance in mitigating obstacles and sustaining student engagement in research.

Table 6 revealed no significant differences between male and female students. For the various dimensions assessed—research usefulness ($p = 0.477$), positive research predispositions ($p = 0.136$), and anxiety ($p = 0.486$)—the p -values exceeded the 0.05 significance level.

Table 6. Test of difference in the attitude towards research when grouped according to sex.

Attitude towards research	F	df1	df2	p
Research usefulness	0.510	1	106	0.477
Positive research predispositions	2.252	1	106	0.136
Anxiety	0.488	1	106	0.486

Table 7 displayed that for research usefulness, female students ($M = 4.79$, $SD = 0.970$) had slightly higher mean scores than male students ($M = 4.65$, $SD = 1.012$), though the difference was relatively small. Regarding positive predispositions, females again scored higher ($M = 3.83$, $SD = 0.963$) than males ($M = 3.54$, $SD = 0.953$), suggesting that female students generally had a more positive attitude toward research. However, the difference in scores between the sexes remains modest. For research anxiety, female students ($M = 4.28$, $SD = 0.935$) reported slightly higher anxiety levels than male students ($M = 4.14$, $SD = 1.143$). According to some recent works (Tran et al., 2023), male learners, those with prior research exposure, and individuals pursuing further studies generally demonstrated more favorable attitudes toward research compared to their peers. Their experience appears to foster greater confidence and interest in research activities.

Table 7. Group descriptive statistics on attitudes towards research by sex.

Attitude Towards Research	Sex	N	Mean	SD
Research Usefulness	Female	66	4.79	0.970
	Male	42	4.65	1.012
Positive Predispositions	Female	66	3.83	0.963
	Male	42	3.54	0.953
Research Anxiety	Female	66	4.28	0.935
	Male	42	4.14	1.143

Table 8 showed the correlation between grade, research usefulness, positive predispositions, and anxiety. As observed, a small but significant positive correlation exists between grade and research usefulness ($r = 0.192$, $p = 0.047$). Grade also correlates moderately positively with positive predispositions ($r = 0.277$, $p = 0.004$). A strong positive relationship exists between research usefulness and positive predispositions ($r = 0.489$, $p < .001$). Anxiety is significantly and negatively correlated with positive predispositions ($r = -0.250$, $p = 0.009$). Also, no significant correlations were found between grade level and anxiety or between grade level and positive predispositions when considering anxiety.

Table 8. Correlation matrix showing the relationship between students' grades, perceived usefulness, positive research predispositions, and research anxiety.

	Grade	Usefulness	Positive predispositions	Anxiety
Grade	Pearson's r	—		
	df	—		
	p-value	—		

Usefulness	Pearson's r	0.192*	—		
	df	106	—		
	p-value	0.047	—		
Positive predispositions	Pearson's r	0.277**	0.489**	—	
	df	106	106	—	
	p-value	0.004	<.001	—	
Anxiety	Pearson's r	-0.062	-0.018	-0.250**	—
	df	106	106	106	—
	p-value	0.524	0.855	0.009	—

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Moreover, Lestari (2020) explored the common struggles encountered by senior students enrolled in an English education program during the thesis writing process. Findings revealed that various internal and external factors hindered their academic progress, including low motivation, ineffective time management, and individual dispositions. Strained interactions with thesis mentors further complicated the experience. Most notably, limited proficiency in English emerged as a key barrier, often preventing students from maintaining consistent development and producing satisfactory outcomes in their research work.

4. Discussion

This investigation focused on exploring students' attitudes toward research by considering three key dimensions: the perceived usefulness of research, their positive inclinations toward it, and the levels of anxiety experienced. Research as an active learning process engages students by allowing them to connect personally with topics of interest, a dynamic that passive learning environments typically fail to provide (Adebisi, 2022). This engagement is evident in the study's outcome, where the majority of participants expressed a favorable perception of research, recognizing its significance and practical value for their academic journey and future careers. Existing literature supports these findings, revealing that undergraduate involvement in research activities can significantly encourage career development, particularly in disciplines such as engineering, by boosting both student enrollment and retention (Borrego et al., 2021). To nurture and sustain this positive mindset, educators responsible for guiding practical research courses might consider integrating targeted activities designed to strengthen students' enthusiasm and confidence toward the subject.

The findings also revealed that despite recognizing the practical relevance of research, students' engagement is often hindered by anxiety and diminished enthusiasm. This aligns with earlier studies indicating that research-related anxiety negatively impacts students' willingness to pursue careers involving research (Cooper et al., 2023). Such emotional barriers can undermine motivation, reducing students' participation in research activities and limiting their interest in research-focused career paths. Similarly, educators acknowledged the importance of research and generally held positive attitudes toward it, yet they, too, reported experiencing considerable anxiety connected to research tasks (Laguador & Soverano, 2023). Research inherently demands creative problem-solving and critical thinking, but obstacles such as insufficient understanding and gaps in knowledge can impede students' full engagement. These difficulties often generate confusion and self-doubt, which in turn contribute to heightened anxiety levels (Zhenlei et al., 2024). This dynamic shed light on why some students, despite appreciating the value of research, still face significant stress. In light of these challenges, schools might consider introducing research concepts earlier in the educational timeline – potentially beginning in junior high – by integrating foundational research modules. This approach addresses the issue of students struggling due to limited prior exposure. Supporting this recommendation, Tauhidah, Rahmasiwi, Nur, and Jayanti (2023) emphasize the necessity of embedding research instruction early in the curriculum.

Furthermore, Gopez, Astudillo, and Demeterio (2024) highlighted that educational stakeholders generally regard the Research Program positively, viewing it as essential preparation for college-level academic work, thereby reinforcing the argument for incorporating research into senior high school education. In addition, Rind (2020) reported that a notable number of researchers maintain negative attitudes toward research, underscoring the need for enhanced research facilities to cultivate more favorable perceptions. Lumanta (2023) further pointed out that achieving success in research requires

a combination of patience, perseverance, dedication, and ongoing support from subject teachers, which can collectively help alleviate anxiety and build confidence among students.

Although all participant groups in this study acknowledged the relevance of research, their emotional reactions and levels of interest differed significantly. This variation points to the influence of diverse teaching approaches and classroom environments on students' engagement. To address these differences, the implementation of research-based instructional strategies (RBISs) is recommended, as such methods have been shown to boost both student involvement and academic achievement (Corrales et al., 2020). Furthermore, prior research emphasizes that students tend to perceive research assignments as more meaningful and the course itself as more relevant when they understand how these activities help develop practical skills applicable to their future careers (Murtonen, 2015). This sense of relevance not only increases motivation but also fosters a deeper appreciation of research as a vital scholarly endeavor. Supporting this perspective, Naureen, Parveen, and Rehman (2022) found that students commonly recognize research as a systematic and intricate process aimed at generating new knowledge. Based on these insights, educators and curriculum planners should prioritize the integration of clear, career-connected learning outcomes and employ diverse instructional techniques tailored to students' varying needs. Doing so may enhance emotional engagement, reduce anxiety, and cultivate a more positive attitude toward research among learners. Moreover, professional development for teachers on effective RBISs could further strengthen their capacity to create supportive and motivating research learning environments.

The study also revealed that sex did not significantly influence students' perceptions regarding the usefulness of research, their overall attitudes, or their anxiety levels. Both male and female students demonstrated comparable views toward research, with only a slight, statistically insignificant tendency for females to report higher anxiety. These findings are consistent with Gallos (2017), whose research indicated that sex does not substantially affect individuals' feelings toward research. Statistical tests confirmed that male and female participants exhibited similar attitudes across all dimensions measured by the research attitude scale. Moreover, a notable positive correlation emerged between students' favorable attitudes toward research and their academic performance in the subject. This finding resonates with some scholars (Mensah et al., 2024) who identified a link between students' research performance and the amount of time dedicated to studying research. Similarly, Kakupa and Xue (2019) observed that students generally held positive attitudes toward research, with doctoral students showing higher confidence, more positive attitudes, and lower anxiety levels compared to their Master's counterparts. Their study further suggested that exposure to a greater number of research courses contributed to anxiety reduction. Confidence was a key factor in fostering positive attitudes, implying that enhancing students' self-assurance may be effective in decreasing research-related anxiety. However, Roxas (2020) reported no significant relationship between attitudes and academic performance, highlighting the possibility that discrepancies in findings may arise from differences in research methodologies or contextual factors.

Research anxiety and grades did not significantly correlate, indicating that their anxiety or discomfort with research did not directly impact students' academic performance. This finding provides a counterpoint to the findings of Garancho and Marpa (2019), who identified anxiety as a key factor influencing students' attitudes, disinterest, the perception that the research is pointless, and teacher influence. According to their study, many teacher education students are still unprepared to participate in research meaningfully. However, current data indicates that students may still perform at par academically despite these emotional and perceptual barriers, even if they have a little discomfort about the subject.

This aligns with the challenges identified by some works (Imafuku et al., 2015) that highlighted that medical students encounter research challenges because of their prior learning experiences, communication abilities, comprehension of research, and relationships with instructors and peers. This implies that overcoming these obstacles and enhancing students' research experiences requires academic expertise, a positive outlook, and a supportive environment. More so, Andaya (2014) found that Grade 12 students' attitudes toward research did not have a strong link to their grades in Practical Research 2. This means that while having a good attitude may help, other things, like how well the teacher teaches, also affect students' performance. The study showed that teachers changed how they teach, think, and work with others. Training works best when it starts with teachers, matches their needs, and is part of their daily work. It also helps when teachers, school heads, and researchers work together (Bergmark, 2019). Because of this, schools may let teachers join

research training to help them teach better and support students more.

The clear association between positive research attitudes, perceived relevance, and improved academic outcomes underscores the critical need to intentionally foster these elements within the educational framework. Cultivating a constructive mindset toward research not only helps reduce students' anxiety but also enhances their motivation and engagement, which are essential for achieving success in research-related tasks. Therefore, curriculum designers and educators must thoughtfully integrate strategies that emphasize the practical value and applicability of research to students' academic and future professional lives. Addressing these challenges proactively can help maintain students' enthusiasm and commitment throughout their research journey, ultimately contributing to better learning experiences and outcomes (Bin-Ghouth et al., 2023).

Moreover, some recent studies (Wishkoski et al., 2022) highlight the transformative potential of deliberate teaching practices tailored to research methods courses. By employing carefully planned instructional techniques – such as active learning, scaffolding, and real-world applications – educators can significantly shift students' attitudes and perspectives, fostering a more positive and open-minded approach toward research. This is particularly important in courses that are traditionally met with apprehension or negativity, as these attitudes can hinder learning and participation. The ability to influence students' perceptions, even when not all of their initial expectations are met, points to the powerful role that teaching methodologies play in shaping educational experiences. Consequently, adopting evidence-based, student-centered pedagogical approaches in research education is essential to overcome barriers and nurture a more confident, engaged, and competent learner population.

Also, the connection between research attitudes and subject performance, this study has several limitations that should be noted. Primarily, because the participants were available and willing to respond, convenience sampling limits the findings' generalizability and may have missed viewpoints from a larger student body. Despite being adequate for correlational analysis, the comparatively small sample size might not fully represent the variety of attitudes and experiences among all Grade 12 students. The study was also limited to a single academic institution, which reduced the range of contexts, such as variations in institutional culture or curriculum emphasis, that could affect research attitudes. Even though the Revised Attitudes Toward Research Scale offered a methodical framework for analysis, it might not have fully captured all the subtle aspects influencing students' attitudes toward research, especially those influenced by contextually specific personal or cultural factors.

5. Conclusions

Learners' perceptions and feelings about research profoundly shape their academic achievements. When students view research as valuable and significant, they are more inclined to engage with the material eagerly and with genuine commitment. This proactive involvement often results in stronger academic outcomes and elevated marks. Such positive attitudes toward research serve as a catalyst, motivating learners to persevere, delve deeper into the content, and participate actively in research-related tasks, all of which enhance their overall educational experience. Moreover, although anxiety does not directly dictate students' academic results, there exists a notable link between a constructive mindset toward research and reduced levels of apprehension. Those who cultivate a confident and affirmative stance toward research tend to face fewer emotional barriers such as stress or fear when confronted with research challenges. Yet, the relationship is nuanced: merely recognizing research's importance does not guarantee a decrease in anxiety. Many students may continue to wrestle with unease or self-doubt, despite appreciating the subject's relevance. Interestingly, the data also demonstrated that sex bore no significant influence on how students judged the relevance of research, nor did it affect their emotional or attitudinal responses. This outcome points to the idea that perspectives on research are not tied to gender, but rather emerge from personal experiences, learning environments, and internal motivations. When research is framed in ways that resonate with students' personal interests and future ambitions, it encourages not only intellectual engagement but also emotional resilience. By weaving relevance and purpose into the curriculum, educators can help students develop a healthier mindset, manage their emotional responses more effectively, and ultimately improve their academic performance. Such an integrative approach attends to both the intellectual challenges and emotional demands of research, supporting learners holistically throughout their academic pursuits.

Acknowledgments: The researchers wish to thank the participating students and school

administrators for their time and cooperation. Gratitude is also extended to the researcher's statistician and peers who offered guidance throughout the process.

Funding: This research was conducted without any external financial support.

Ethics Statements: The study followed standard ethical procedures. Approval was sought from the proper school authorities before the data collection began.

Informed Consent Statement: All participants were informed about the nature and purpose of the study. Their participation was voluntary, and written consent was obtained prior to the survey.

Conflicts of Interest: The author declares no conflict of interest related to this research.

Data Availability: The data supporting the findings of this study are available from the author upon reasonable request.

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