

The Influence of Student Engagement, Learning Resources, and Lecturers' Feedback on the Academic Performance of University Students in Shandong, China

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Abstract

The purpose of this study is to investigate the influence of student engagement, learning resources, and lecturers' feedback on academic performance of university students. Specifically, the research tested three hypotheses: Ha1, that university student engagement is positively correlated with academic performance; Ha2, that learning resources are positively correlated with academic performance; and Ha3, that university lecturers' feedback is positively correlated with academic performance. Using a quantitative, correlational research design, data were collected via a structured, self-administered questionnaire distributed to a stratified random sample of 385 students from the top 10 universities in Shandong Province. The findings show Academic performance was found to be strongly and statistically significantly positively correlated with learning resources ($r = .810$, $p < .001$), lecturers' feedback ($r = .866$, $p < .001$), and student engagement ($r = .815$, $p < .001$). The strongest correlation was found with lecturers' feedback. These findings indicate that student engagement, resources provision and feedback quality were all factors which contributed to changes in academic performance, with feedback seemingly playing a particularly crucial role. The study highlights the importance of effective feedback techniques, modern resource provision, and high-quality lecturer support for academic success in Shandong. To maximise student potential, the conclusion highlights the necessity of a comprehensive approach that incorporates resource enhancement, motivational teaching, and focused feedback. The implication is that universities should adopt engagement-focused pedagogies, increase access to contemporary learning resources, and give priority to training lecturers to provide feedback. At the higher education level, this comprehensive strategy has the power to uphold academic quality, improve student success and eliminate achievement gaps.

Keywords: Student Engagement, Learning Resources, Lecturers' Feedback, Academic Performance

Introduction

China's higher education system faces increasing pressure to optimize student outcomes and institutional quality. Yet little is known about how student engagement, resources, and feedback intersect to shape academic results. Resources like facilities and support services occasionally better predict Chinese students' learning than instruction alone, according to Lu et al. (2024). Especially in digital arenas, engagement emerges as a nuanced forecaster: English learning success strongly ties to actual behavioral engagement, like task completion (Sun, 2024). Simultaneously, lecturers' emotional backing elevates students' resilience, dedication, and self-efficacy, all positively affecting performance (Guo, 2025). What's more, assignments involving reflective writing see dramatically higher student outcomes and engagement when backed by real-time, personalized, and data-informed replies (Suraworachet et al., 2022).

In Shandong Province's university, China, academic performance is still a crucial indicator of student achievement and the calibre of the institution, but little is known about the factors that influence it. Research at numerous Chinese institutions consistently demonstrates the crucial role strong student-educator bonds play in inspiring scholarly zeal and commitment to coursework (Pan & Yao, 2023; Guo, 2025). According to Yang and Zhang (2023), timely, considered responses from instructors to inquiries and submissions significantly encourages autonomous studying and lifelong academic progress. Furthermore, the availability and quality of interactive learning aids incorporating modern technologies positively impacts involvement and results (Akpen, 2024). However, no empirical studies have examined how these three factors synergistically sway academic success within Shandong's singular institutional and cultural context. Without localized proof, universities and policymakers have limited ability to craft targeted, evidence-driven strategies for optimizing educational outcomes.

The purpose of this study is to investigate the influence of student engagement, learning resources, and lecturers' feedback on academic performance in Shandong Province of China. To answer the research objective, a research question is developed: Is there any significant difference between student engagement, learning resources, lecturers' feedback, and academic performance in Shandong Province of China? Three hypotheses are developed: Ha1: Student engagement is positively correlated with academic performance; Ha2: Learning resources are positively correlated with academic performance; Ha3: Lecturers' feedback is positively correlated with academic performance.

Previous Research

In higher education, a variety of factors influence academic performance, but three main ones stand out: lecturer feedback, learning resources, and student engagement. While university student participation plays a key role, equally critical are quality resources and insightful guidance. Previous investigations show enhanced outcomes, deeper understanding, and heightened drive associate with active involvement. Well-designed digital or physical materials, available to support learning, aid in competency and comprehension growth. Comments from instructors steer evolution, prompting self-analysis and connecting execution to expectations. This examination surveys earlier works regarding these three determinants, depicting how they impact accomplishment and pinpointing any pertinent spaces for college students in Shandong Province, China.

The Influence of Student Engagement on the Academic Performance of University Students

Student engagement is a robust predictor of academic performance in numerous institutions of higher education, it also was hypothesized to predict self-rated success dimensions. A multi-level engagement promotion strategy has been demonstrated to provide optimum performance benefits, evidenced by findings attested globally in the study revealing that behavioural, cognitive, and emotional engagement are all directly associated with students' academic achievement (Pillana & Osmani, 2024). Positive lecturer behaviors predict, reliable and statistically significant correlate, increases in engagement of moderate strength and manifest effects ($d = .398$) that directly affect learning outcomes for students measured by both perception (Huang et al., 2023). Moreover, the study with 298 undergraduates in another university found that Lecturer-Student Rapport and Support accounted for over 40% of the variance in student engagement, an important indicator of instructional relationships as a factor influencing student learning experience more to discover (Pan & Yao, 2023). In Shandong province, students who feel supported by their lecturer have higher confidence in their academic abilities and growth mindset, they even do better on performance tests. Further it increases engagement (Guo, 2025) and Wang (2024) revealed that, in Shandong, engagement was able to improve academic outcomes by the mediating cause of learning motivation. The findings of this study suggest that while the global relationship between performance and engagement is recognised in Shandong, one pathway through which it operates lecturer support is so variable that its mediated effects upon motivation are substantially weaker.

The Influence of Learning Resources on the Academic Performance of University Students

Both learning performance and the quality of access to learning resources in universities are affected. Previous study also finds that university resources are the best predictors of student learning success (Al-Samarrai et al., 2024). In a research work on educational resources, it was discovered that the use of interactive and fun tools which can be visual aids such as multimedia or tangible tools like hands-on resources help in enhancing understanding and retention leading to higher academic success in different settings (Usman & Salisu, 2024). Akpen (2024) observed a significant positive association between the level of instructor engagement with students, and quality of digital tools, on one hand, and student participation in online learning and academic performance in China from a systematic review consciousness. Local higher education initiatives have begun to provide some evidence that investments in revised curriculum models and new teaching infrastructure, notably in technological and medical domains, improve educational quality and student success despite limited empirical research targeted at this area of the Shandong province (Li et al., 2024). These results add to the evidence that both types of learning materials are important for achievement in school, a lesson echoed by Shandong's ongoing educational reforms, which reflect national and international trends in reform.

The Lecturers' Feedback on the Academic Performance of University Students of University Students

There is growing body of research that supports the critical nature of constructive feedback from a lecturer to enhance student performance. Similarly, feedback, was despite being constructive, corrective or evaluative has been shown to have a substantial effect on students self-efficacy and divert pursuits towards better academic performance globally as well (Ahmed 2021). The video-based instructor feedback, both in a visual and auditory form was

also rated as effective by the students and led to an increased engagement with academic material. This effect was further pronounced when combined with GPA tracking (Máñez et al., 2025). A large sample of data ($n = 2,458$ with undergraduate students in China) has also demonstrated that perceived lecturer feedback was a predictor of academic performance and not only as an indirect effect via the student engagement (Charalampous & Kokkinos, 2025). While there are few empirical studies of feedback on a larger scale in Shandong, research centred around student perceptions of how effective the feedback offered appears to have both strong correlations with self-regulated learning, language proficiency, and performance-related self-efficacy (Lu, 2022). What these studies have in common, untied from the disciplinary boundaries across which the work is spread, are those qualities of the same lecturers' explanations and laced with features such as teamwork that self-evidently operate across a distance, residential time or other form of segregation. This indicates that further exploratory empirical research with a focus on Shandong is obviously necessary.

Research Design

The research applied a quantitative method, the study used numbers and statistical tests to be precise and objective. Correlational research design, focused on relationships between variables, not proving one directly causes the other to investigate the influence of learning resources, lecturers' feedback, and student engagement on academic performance among university students in Shandong Province, China. The design was selected to assess the direction and strength of these associations without changing any of the variables. The three hypotheses were tested using Pearson correlation analysis, which produced statistical proof of the favourable associations between academic achievement and the independent variables.

Location, Population, and Sampling

Location for this study chose the top 10 universities in Shandong Province, China, as the focus of this study, which evaluated the effects of lecturer feedback, learning materials, and student engagement on academic achievement.

The population, a portion of China's 47.63 million higher education students in 2023, includes 390,459 actively enrolled students from these universities included in the population. Since each student served as the unit of analysis, the group was appropriate for examining variables related to academic performance.

Sampling, 50 students per university (a total of 500) were randomly distributed at the using a stratified random sampling technique. 384 respondents were deemed adequate in accordance with Krejcie and Morgan's (1970) guidelines; statistical reliability was ensured by the receipt of 385 valid responses, or 77% of the total.

Instrument

Structured questionnaire that gathered information on their academic performance, learning resources, lecturers' opinions, and student engagement. The instrument, which was created using literature as a guide, had 40 items total and was divided into five sections: academic performance (6 items), learning resources (8 items), lecturers' feedback (10 items), student engagement (11 items), and demographic data (5 items). Every item was derived from validated sources, including Handelsman et al. (2005), Pintrich et al. (1993), Núñez-Peña et al.

(2015), and Lauterbach et al. (2002), and was scored on a 5-point Likert scale (1 being strongly disagree and 5 being strongly agree). With Cronbach's alpha values of 0.814 (student engagement), 0.805 (learning resources), 0.898 (lecturers' feedback), and 0.878 (academic performance), reliability testing demonstrated strong internal consistency. To guarantee consistency in data collection, the questionnaire was self-administered and took roughly 15 to 20 minutes to complete.

Results

The results of a study showed the influence of student engagement, learning resources, and lecturers' feedback on the academic performance of the university. The three hypotheses (Ha1, Ha2, and Ha3) were tested using correlation analysis, which also revealed the direction and strength of the relationships between the independent and dependent variables. The findings show that there were strong, positive correlations between academic performance and all three variables for student engagement, learning resources, and lecturers' feedback, all of which were statistically significant at the 0.01 level (2-tailed).

Result 1: Student engagement and academic performance in Shandong Province of China

Ha1: Student engagement is positively correlated with academic performance.

This section investigates the connection between academic achievement and student engagement among Shandong Province university students. In order to test Hypothesis 1 (Ha1), correlation analysis is used to ascertain whether greater levels of engagement are linked to better academic results.

Table 1

Correlations – Student Engagement

		Academic Performance	Student Engagement
Academic Performance	Pearson Correlation	1	.815**
	Sig. (2-tailed)		.000
	N	385	385
Student Engagement	Pearson Correlation	.815**	1
	Sig. (2-tailed)	.000	
	N	385	385

**. Correlation is significant at the 0.01 level (2-tailed).

Table 1 indicates that, among the 385 students in the study, the Pearson correlation analysis showed a strong and statistically significant positive relationship between academic performance and student engagement ($r = .815$, $p < .001$). This research provides evidence that increased academic performance is associated with higher rates of student engagement. In other words, students that are involved, hype or generally want to learn more actively score better education wise. Given the power of this correlation, it is conceivable that student engagement is a key component in getting and keeping students on track to becoming successful learners. Thus, Ha1 is accepted.

Result 2: Learning resources and academic performance in Shandong Province of China

H_{a2}: Learning resources are positively correlated with academic performance

This section investigates the connection between academic achievement and learning resources among Shandong Province university students. Using correlation analysis to test Hypothesis 2 (H_{a2}), the analysis examines whether the availability and efficient use of learning resources are linked to better academic outcomes.

Table 2

Correlations – Learning Resources

		Academic Performance	Learning Resources
Academic Performance	Pearson Correlation	1	.810**
	Sig. (2-tailed)		.000
	N	385	385
Learning Resources	Pearson Correlation	.810**	1
	Sig. (2-tailed)	.000	
	N	385	385

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 indicates the results of this Pearson correlation analysis, there was a strong and statistically significant positive relationship ($r = .810$, $p < .001$). Students with more access to learning use a suite of resources: most powerful predictor. The strong correlation strength of this factor demonstrates that facilitating access and increasing efficiency in the usage of learning resources (e.g. technology, textbook, academic support materials) are key to improve the academic performance of students. Thus, H_{a2} is accepted.

Result 3: Lecturers' feedback and academic performance in Shandong Province of China

H_{a3}: Lecturers' feedback is positively correlated with academic performance.

This section investigates the connection between Shandong Province university students' academic achievement and the feedback they receive from their lecturers. Using correlation analysis to test Hypothesis 3, the analysis seeks to ascertain whether timely, helpful, and significant feedback from lecturers leads to better academic outcomes (H_{a3}).

Table 3

Correlations – Lecturers' Feedback

		Academic Performance	Lecturers Feedback
Academic Performance	Pearson Correlation	1	.866**
	Sig. (2-tailed)		.000
	N	385	385
Lecturers Feedback	Pearson Correlation	.866**	1
	Sig. (2-tailed)	.000	
	N	385	385

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3 indicates that Pearson correlation analysis found that academic performance was very strongly and statistically significantly positively related to lecturer feedback ($r = .866$, $p < .001$). The more feedback professors give students, and the more quickly they do so and the more helpful to them the better those students perform academically, according to this research. Given that it most likely supports students in finding out where they may want to develop further, revisiting learning materials and maintaining motivation, the high correlation value means lecturers' feedback is probably an influential factor when it comes to determining academic success. Ha3 is accepted.

Table 4

Output for Correlation of the Variable

Variables	Coefficient Range	Strength of Association
Student Engagement	0.815	High
Learning Resources	0.810	High
Lecturers Feedback	0.866	High

In Table 4, the results of correlation analysis showed that all three variables consisting student engagement, learning resources and lecturers' feedback are highly positively correlated with academic performance. In particular, learning resources ($r = 0.810$) and student engagement ($r = 0.815$) have more than moderate correlations with academic achievement, this means that if the performance is better being more engaged or have better access to resources it is important. Between the three, lecturer feedback has the most impact on students academic success with a correlation of ($r = 0.866$). In the end, these findings underline that greater involvement, access to proper learning tools and good feedback also are vital factors in for better academic achievement.

Table 5

Summary of the Results According to Hypotheses

No	Hypotheses	Statistical Tools	Results
Ha1	Student engagement is positively correlated with academic performance.	Correlation	Accepted
Ha2	Learning resources are positively correlated with academic performance.	Correlation	Accepted
Ha3	Lecturers' feedback is positively correlated with academic performance.	Correlation	Accepted

Table 5 reveals that all of three proposed hypotheses were accepted. Particularly, the analysis confirmed that student engagement and academic performance (Ha1), academic performance and learning resources (Ha2), and lecturers' feedback and academic performance (Ha3) are correlated positively. All these results have statistically significant positive correlation coefficients, and therefore suggest these elements to be key for improving the academic outcome of students.

Discussion*Discussion 1: Student engagement and academic performance in Shandong Province of China*

The result 1 is in line with findings from national and international studies about the predictive power of engagement for academic success. University of Tirana study found that found the highest effects on student achievement were achieved when all three types of engagement includes behavioral, cognitive, emotional were implemented together (Pllana & Osmani, 2024). Strong lecturer-student relationships and positive lecturer behaviours are found to predict higher student engagement in learning specific outcomes among 93,188 Chinese students too (Huang et al., 2023).

In the context of Chinese higher education, especially in Shandong, whether this replacement behavior can present a new methodological relationship is essentially related to the quality of instructional relationships. In 298 undergraduates, Pan and Yao (2023) found that rapport and support provided by their lecturers explained over 40% of the variance in student engagement. Additionally, Guo (2025) showed that emotional support from lecturers can help increase student resilience and academic self-efficacy, a quality known to have long-lasting implications on engagement and performance. Positive correlation between investment and academic success is also noted by Wang (2024), that reported English learning motivation as a mediator in Shandong's vocational EFL colleges, the more engaging students were the better grades they got.

Together, these findings suggest that the relationship between engagement and performance established could be mainly driven by supportive lecturer quality within motivational pathways in Shandong Province. A variety of approaches are necessary to maximize student engagement and thereby promote students' academic potential: supportive learning environments combined with motivational techniques, integrated with effective teaching practices.

Discussion 2: Learning resources and academic performance in Shandong Province of China

Result 2 confirms several studies that underscore the importance of learning materials in the academic outcomes they drive. The first two dimensions institutional resources, facilities and academic support are amongst the best predictors of student learning outcomes; in a world-wide analysis of higher education institutions it turned out that they were sometimes even more important than the quality of instruction (Al-Samarrai et al., 2024). Similarly, Usman and Salisu (2024) mentioned the effectiveness of learning and memory through interactive attention-grabbing multimedia aids as well as tools to perform a practical in an assortment of educational environments.

Research in China also found greater student engagement and performance as the quality of digital resources and level of instructor interaction increased (Akpen, 2024). Data from Shandong. Li et al. (2024) mentioned policies that have promoted local investments in modern built teaching infrastructures and cohort curriculum models, which are especially concentrated in technical and health fields, appear to have impactively improved educational quality and students' effectiveness.

Overall, this study supported the view that both digital and physical learning materials are necessary in academic contexts. This paper situates resource enhancement as a strategic lever for increased academic performance within the province, and explores Shandong's ongoing educational reforms in modernising teaching infrastructure to serve this purpose whilst reflecting national and international best practices.

Discussion 3: Lecturers' feedback and academic performance in Shandong Province of China

Result 3 is in line with studies identifying the importance to academic success feedback from lecturers. Internationally, feedback either as constructive, corrective, or evaluative has been proved to enhance self-efficacy and advise students towards betterment (Ahmed, 2021). A multinational study by Máñez et al. (2025) reported that visual and audio supportive video feedback led to a 'more positive attitude towards their learning', 'increased engagement with feedback activities' and resulted in a significant improvement in academic performance, particularly when combined with the provision of information.

Using large-scale data from 2,458 undergraduates in China, Charalampous (2025) demonstrated that perceived lecturer feedback directly predicted academic performance and indirectly increased it by enhancing student engagement. Although there are few region-specific empirical studies known in Shandong, Lu (2022) proved that feedback perceptions strongly correlate with self-regulated learning, self-efficacy, and English language proficiency, highlighting the facilitating role of feedback on performance change.

In combination, these findings indicated that the nature and modality of lecturers feedback and their value according to student perceptions were key elements in engaging students and contributing of achievement. In this context, for Shandong getting better at feedback more focused, prompt and pertinent could be a game changer in terms of academic quality and educational outcomes.

Conclusion

To summarize, this study provides strong evidence that student engagement makes a significant and positive contribution to university student academic performance in Shandong Province China ($r = .815$), learning resources ($r = .810$); and lecturers' feedback ($r = .866$). The findings show that better scholastic performances are correlated with higher levels of involvement, which is created through engaging pedagogic practices, lecturer-student relationships, and motivational strategies. Similarly, availability of premium learning resources whether digital or physical creates a positive impact on the comprehensibility, retention and application of the learned stuff.

Feedback from lecturers was the factor that correlated most strongly of the three, influencing developmental and learning outcomes, as well as motivation. Receiving frequent, comprehensible and relevant feedback will motivate, encourage engagement and self-regulated learning which ultimately drives performance.

The combined results reveal Shandong's universities are in dire need of a multi-faceted educational model inclusive of optimal resource provision, feedback systems and teaching and engagement practices. Such an approach can create a supportive and engaging learning environment that focuses on maximising student potential and closing gaps in performance, while securing academic success for the province far into the future.

Implication and Suggestion

This study provides comparable evidence that lecturers' feedback is the most significant correlate of student academic performance in Shandong, China with student engagement and learning resources as the next important followed by retention and clear priorities for institutional enhancement application priorities. China's higher education system, particular in Shandong is under increasing pressure to produce better outcomes for students and better institutions. However, there is few in the way of province-level evidence that simultaneously consider how student engagement, learning resources, and feedback from lecturers operate conjunctively to influence student academic performance. This study addresses this gap by providing multi-institution evidence from Shandong province's universities, taking advantage of validated measures and employing a strict sampling strategy to know which levers matter the most and implicate in evidence-based, operational action.

The study illustrates that improving academic performance within Chinese universities of Shandong requires multiple interdependent strategies, including enhancing student engagement, accessibility to quality learning materials, and provision of feedback from lecturer. Lecturer feedback had the most significant association with performance and should, therefore, take precedence when it comes to enhancing this form of support; educational institutions should educate lecturers possibly even annually and teach them how to deliver timely, specific, meaningful feedback about student performance. Engagement-centered teaching techniques can serve as a catalyst for making students more motivated, participatory and diligent when it comes to their academic endeavours; whereas enhancing the presence of resources be it digital or physical can simultaneously enhance the potential of learning amongst students.

The study offers a complex, multi-factorial and province-level assessment of student engagement, learning resources and lecturer's feedback in one unified layout at leading universities in Shandong. It describes which levers are most important for performance, finding that high-quality timely feedback from lecturers is the most important driver, followed by student engagement and resource supply. It provides a valid and reliable measurement approach for its context developed through validated instruments, which enables other higher education practitioners in China universities to reuse the toolkit with ease.

Suggestions arising from this study, universities need to enhance students' involvement, active and interactive learning methods, peer coaching sessions, and problem-solving exercises, which can be used initially by the student individually such that student features can contribute to these. Let us see how they could have improved academic strategies and motivation. University commitment in creating technology-ready e-content, campus infrastructure and incentivising faculty to provide well-structured, insightful feedback that forms the base for a robust resource or feedback system. Together, these steps could help create a caring university environment that not only reduces learning gaps today but also encourages long-term success. Finally, it makes the evidence actionable, calling for universities, lecturers and policymakers to improve feedback and systems, embed engagement-focused pedagogy and reimagine resource provision while also creating a baseline for future causal or longitudinal research to test mechanisms or evaluate interventions.

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