

The Mediating Role of Student Engagement in the Relationship between Personality Traits and Academic Innovation Performance

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Abstract: Due to the growing attention toward the academic innovation field and within the creative field of education, this paper will discuss the mediating power of student engagement on the ability of personality traits to shape the innovation performance of students. Based on the Five-Factor Model and the engagement theory, the study will seek to determine those traits that have a significant impact on innovation and the transfer of the personality into academic creativity in the form of engagement. The study employed a quantitative cross-sectional study design to sample 252 fourth-year undergraduate students taking undergraduate degree programs in drama, film, and television performance programs in five major Chinese universities. Self-report questions were validated and analyzed with the help of Partial Least Squares Structural Equation Modeling (PLS-SEM). It was found that openness, conscientiousness, and extraversion were great predictors of student engagement, which positively contributed to academic innovation performance. Innovation results were partially mediated by the effects that openness and conscientiousness had on the results of engagement. The results also point to engagement as an influential process between personality and innovation that can be used by teachers and policy-makers in an attempt to promote creative academic achievement. Incorporating personality-sensitive engagement principles into the curriculum design can contribute to innovation in the students. Future studies need to consider more longitudinal dynamics and investigate other mediators, including motivation, self-efficacy, or institutional support.

Keywords: Personality Traits, Student Engagement, Academic Innovation Performance, Higher Education.

1. Introduction

The increasing complexity and dynamism of information economies are increasingly placing pressure on academic performance in the development of students who can adjust to them, and this has also elicited more demand for academic innovation. It has emerged as an essential part of the education development in the aggressive, competitive learning environments. It has already researched that personality traits and other personal psychological aspects have a significant influence on academic

outcomes like creativity, performance, and application of knowledge (Furnham, Monsen & Ahmetoglu, 2009). A substantial part of this research, however, omits the basic mechanisms by which these personality traits influence academic creativity. There is little comprehension of how student participation can mediate this interaction. Thus, the research paper focuses on the mediating role of student involvement on the relationship between academic innovation performance and personality variables. The research investigates the existence of these linkages through a quantitative survey-based design and structural equation modelling (PLS-SEM).

Many researchers have investigated the correlation between personality attributes and academic processes, especially the ones described in the Big Five model (conscientiousness, extraversion, agreeableness, neuroticism, and openness) (Mammadov, 2022; Vedel, 2014). Studies have always indicated that conscientiousness and openness correlate with a higher academic performance, the ability to be creative and inventive (Zabelina et al., 2022). Such traits often influence the ways students learn, comprehend information, and solve problems, which are useful in enabling them to be creative in the classroom setting.

At the same time, emotional, behavioral, and cognitive dimensions of student engagement affect learning outcomes, which have become a powerful indicator of academic success (Shafait et al., 2021). Students who are actively engaged in their learning have higher chances of putting effort into their education and demonstrating perseverance and active learning, which are all characteristics associated with creative academic behavior. Engagement is also a suitable candidate to mediate between the effects of personality traits, as it has been suggested to mediate between external academic behaviours and internal disposition (Ramirez-Arellano, 2024).

Despite such developments, there is lack any information available on the role of student involvement in mediating the relationship between academic innovation achievement and personality qualities. Most studies have not quantified any other relationship except the direct one. Besides, the topic of innovation performance as an educational outcome remains a poorly researched concept relative to traditional metrics such as GPA or test scores. Through the use of Partial Least Squares Structural Equation Modeling (PLS-SEM), which is the best method of measuring complex relationships among the latent variables, this research intends to bridge that gap by testing a model of mediation.

The gap so far is eliminated in the current research through the formulation of two primary research questions: (1) Do personality variables play a significant role in academic innovation performance? Moreover, (2) Does student engagement mediate the relationship between academic innovation achievement and personality factors? The project aims at deepening the theoretical framework of student learning by exploring these concerns and giving useful recommendations to enhance academic innovation with the help of engagement-oriented and personality-sensitive strategies.

2. Literature review

2.1. Personality Qualities and Performance in Academic Innovation

Psychological basics, personalities play a role in shaping the behavior of people, in their thinking, and in the control of their emotions in all aspects of life, such as at school. Personality characteristics have been linked to numerous academic outcomes

e.g. motivation, creativity, ability to find solutions, and academic performance. One of the most popular taxonomies of personality is the Five-Factor Model (FFM), also called the Big Five personality traits, which consists of five broad dimensions, namely: neuroticism, conscientiousness, extraversion, agreeableness, and openness to experience (Smith et al., 2021). These features are commonly consistent and reveal the long term performance patterns and practices.

Among the Big Five qualities, openness to experience has shown the least variation in its relation to creativity and innovation. Mehrad and Mehrad (2023) cite that highly open individuals are curious, innovative, and thinkers, which makes them preferable for generating and applying creations, which are key components of academic performance in innovation. Such individuals are more likely to explore numerous positions, break assumptions, and rely on abstract thinking, which facilitates creative thinking in academic tasks (Álvarez-Huerta, Muela & Larrea, 2022).

Conscientiousness is another trait that is also often related to self-control, persistence, and academic industriousness. Highly conscientious students in challenging academic environments have been found to practice goal-oriented behavior, schedule time, and work perseverance, which facilitates the generation of innovative academic products (Kim, Poropat & MacCann, 2016). Such students would tend to organise the execution and the planning of tasks in a systematic way, where the creative mind should be systematically applied, although it is usually related to the routine performance.

Neuroticism, on the other hand, which is indicative of emotional instability and sensitivity to stress, is usually believed to be a hindrance to creativity and academic achievement. Xinru and Ahmad (2023) find high neuroticism to be associated with anxiety, fear of failure, and being doubted by others, which inhibits risk-taking and creativity in any form. Such individuals may avoid difficult assignments or new challenges, which will restrain their innovative abilities. Despite the fact that agreeableness and extraversion also influence academic behaviours, the studies have demonstrated less systematic evidence of the direct effect on inventiveness (Paiman et al., 2023).

Limited literature has specifically examined personality factors within the scope of academic innovation performance. Although these traits were strongly correlated with academic behaviours, this construct includes creative production, innovative thinking, and creative problem-solving at school. The majority of the previous researchers have rather focused on the conventional academic performance indicators such as grade point average (GPA), test scores, or academic persistence, dismissing the multifaceted functions that factors of personality play in creative success. This gap underscores the necessity of models that bring out the interplay between academic results aimed at innovation and personality.

2.2. The Role of Student Engagement in Forecasting Academic Results

Most individuals have the perception that student involvement is one of the factors that define learning and academic results. The concept of engagement includes behavioral, emotional, and cognitive components and can be described as the degree of attention, interest, curiosity, optimism, and passion students display in the course of the learning process (Wong & Liem, 2022). Engagement in academic processes is known as behavioural engagement and emotional engagement (interest or boredom), and cognitive engagement as a manifestation of learning investment and implementation of in-depth learning strategies.

High engagement is associated with a variety of positive academic results, including better grades, higher retention rates, and better academic satisfaction (Kimbark, Peters & Richardson, 2017). Involved learners are also more likely to learn to take intellectual risks, collaborate with others, and seek feedback, which are aspects that relate to academic innovation. Research additionally shows that cognitive engagement is essential to develop critical thinking and problem-solving skills, two requirements of academic creative output (Almulla, 2023). Emotional and cognitive involvement in the process of education makes students more prone to exploring various solutions, developing new ideas, and choosing to apply knowledge in the original form.

In other models of education, student engagement is a mediating, moderating and outcome variable. Through this channel, the individual characteristics, such as personality features, are influential in academic achievement. Innovation performance is a complex educational phenomenon, so it is specifically relevant that involvement is the outcome and process variable at the same time.

2.3. Connecting Student Engagement with Personality Features

The importance of understanding the influence of personality characteristics on student engagement has been highlighted in the literature on the topic of increasing importance. There are certain personality variables, which research suggests, can cause students to be more or less engaged in the three areas. An instance of this is that higher degrees of openness would predispose students to engage in autonomous inquiry, reflective learning, and complex thinking (Orakci, 2021). They engage in intellectually stimulating scenarios as they are naturally inquisitive and fond of new things, which enhances intellectual and emotional interaction.

Similarly, conscientiousness has been associated with planning, persistence, and goal-orientation, which are required in the long-term behavioral engagement (Javaras, Williams & Baskin-Sommers, 2019). Such children often portray a lot of commitment to various tasks and self-discipline, resulting in levels of heightened engagement and hard work in studies. Nonetheless, through stimulating anxiety and self-doubt, neuroticism often decreases participation and could lead to avoidance or disengagement (Georgescu et al., 2024). In situations dealing with academic issues, even the highest neurotic students might not be able to maintain their emotional composure, and that could affect their capacity to stay attentive.

Although there is growing consensus that personality factors do influence engagement, most studies have been designed to measure academic achievement in general or examined these aspects individually. There are still no complete models where personality traits and involvement can be considered in the framework of more complex academic objectives, such as innovation. This disregards our understanding of the outcome and development of the internal dispositions into practical academic behaviour and creative achievements.

2.4. Engagement's Mediating Function in Academic Innovation

Theoretical assumptions and empirical evidence suggest the notion that student engagement could be a mediator between the academic innovation success and academic personality characteristics. The Self-Determination Theory says that intrinsic

motivation and engagement are essential to high-quality learning and creativity (Aldabbas, Pinnington & Lahrech, 2022). The personality factors can have an indirect influence on innovation-related outcomes via engagement processes since they can shape student motivational orientations.

In a case in point, a child with a high openness score would be predisposed to intellectual inquiries. Yet, this potential may not be achieved unless something is done, like being present in class discussions, critically evaluating information, or attempting to test new ideas. Likewise, even the hardworking student can work hard, but innovative performance will never be achieved without involvement in an activity that would contribute to the development of creativity, which can be a project-based learning or problem-solving in a group. The same mechanisms, in which involvement moderates the correlation between personality and workplace creativity, have been empirically proven in the organizational psychology (Baas et al., 2013), meaning that they can be used in the academic setting as well.

With a positive theoretical background, existing empirical studies do not focus specifically on involvement as a mediator between levels of academic innovation and personality in higher education. The majority of the existing theories focus on the independent role of engagement or the direct impact of personality on innovation. Moreover, the statistical analysis used in the previous studies often fails to reflect this complexity of latent variables. Partial Least Squares Structural Equation Modelling (PLS-SEM) is an effective technique that can be used to examine these relations. PLS-SEM is particularly well adapted to studies based on exploratory research and models that use mediation and moderation at numerous levels.

2.5. Literature Gaps and Study Contributions

It has been found that student engagement and personality factors are significant predictors of academic behavior, such as creativity. Nevertheless, there is a dire lack of knowledge of the impact of these factors on innovation performance. By missing out on integrative models that consider the indirect routes of personality to innovation, of engagement, a lost opportunity arises to further the field of educational psychology and pedagogical practice.

This study aims to address this gap by using PLS-SEM to conduct an experiment with a mediating model and compare the relationships between academic innovation success, student engagement, and personality factors. The research has both practical implications for curriculum design, instructional strategies, and student development programs as well as involves the development of theory because it integrates these constructs into a unified one. It highlights the importance of nurturing positive personality traits and the extreme degree of engagement to fuel innovation with regard to learning settings.

3. Methodology

3.1. Research Design

The research methodology adopted in this study was quantitative and cross-sectional research to analyze the mediating role of student engagement in the relationship between personality traits and academic innovation success. Since the proposed connections are

quite complex, and the study focuses on prediction, Structural Equation Modeling (PLS-SEM) was selected as the main piece of analysis. PLS-SEM has particular capabilities to deal with non-normal data distribution and multifaceted mediation models, in addition to measuring and evaluating measurement and structural models concurrently. A pilot study was conducted on thirty-five students of a local university prior to the massive data collection. The items in the questionnaire were better refined with the help of this upstream stage of its development in order to ensure its ability to be understood, with a sensitivity to culture and relevance to the topic of various participants.

3.2. Research Sample (Study Group)

The target population of this study was the fourth-year undergraduate students in the five esteemed mainland Chinese Universities as follows: Nanjing Arts Academy, Beijing Film Academy, Shanghai Theatre Academy, Communication University of China and Central Academy of Drama. The provision of purposive sampling was to ensure that the elements of academic innovation success were applicable, particularly among students who are near the end of their academic days. Three hundred learners were solicited to participate in the study.

Out of them, 252 students sent real and completely completed surveys, which gives an 84 percent response rate. This response rate is very high and makes the findings very reliable, and there is less chance of non-response bias. Informed consent was given by all the respondents, and their participation was voluntary. The strict observation of ethical standards was followed in the whole research process, such as ensuring that confidentiality and anonymity were taken care of. While purposive sampling can be used to obtain an in-depth examination into the academic innovation within major institutions of student art training academies, it also limits the generalizability of the results to the rest of the student population.

3.3. Research Instruments and Procedures

The investigation involved three major tools. Personality traits were tested using the Big Five Personality Inventory, a Chinese short-form adaptation (including seven reverse-score items) of the original forty-item openness, conscientiousness, extraversion, agreeableness, and neuroticism questionnaire. Student engagement was assessed using an engagement scale adapted to ensure that the measures were cognitive, behavioral, and emotional, with regard to the performing arts environment. The confirmatory factor analysis conducted in the pilot phase with fit indicators such as a Comparative Fit Index (CFI) of 0.94 as well as a Root Mean Square Error of Approximation (RMSEA) of 0.06 and Standardised Root Mean Residual of 0.05, showed satisfactory construct validity.

Academic innovation performance was measured by a context-specific scale that was used to assess performing abilities as well as practice, creative interpretation, expressiveness, and creative thinking and imagination. Each of the survey items was rated on a five-point Likert scale; high scores on the item represented high levels of the respective constructs.

In order to make the survey more accessible and available, they were distributed electronically and physically. The respondents were assured that their answers would be anonymous and confidential. The test of single factor conducted by Harman, which

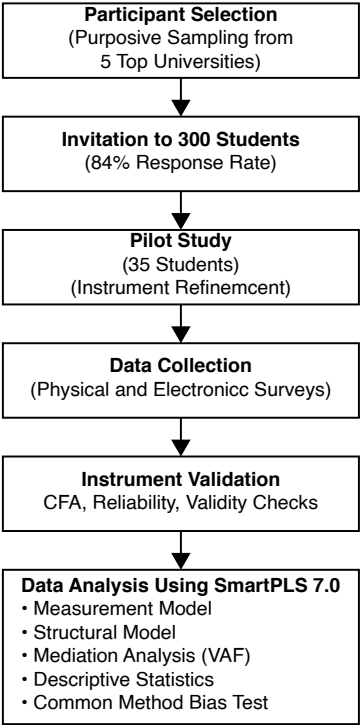
was done post hoc to overcome the possibility of common technique bias, ensured no single factor was able to explain more than 40 per cent of the variance, and there was no possibility of a serious threat of common method bias in this study.

3.4. Data Analysis

The data was analysed in two stages to be analysed with the help of SmartPLS 7.0. To start with, the measurement model was tested on validity and reliability levels. All constructs with composite reliability and Cronbach’s alpha values exceeded the proposed criterion of 0.70, with all Cronbach’s alpha values having a value of 0.896, representing a strong internal consistency. The discriminant validity was determined by the Heterotrait-Monotrait (HTMT) ratio and Fornell-Larcker criterion, whereas the value of the Average Variance Extracted (AVE) greater than 0.50 has been regarded as a confirmation of the convergent validity.

The second stage was the evaluation of the structural model. The assessment of collinearity revealed that all Variance Inflation Factors (VIF) are less than 3.0, and these factors did not indicate the existence of a multicollinearity issue. By engaging students, the mediation analysis was performed to examine the indirect influence of factors of personality on academic innovation performance. The strength of mediation was measured with the help of the Variance Accounted For (VAF) measure; the values of VAF between 20 and 80 percent indicated partial mediation, whereas values above 80 percent indicated complete mediation.

Figure 1: Methodology Flowchart of the Research Process.



Means, standard deviations, skewness, and kurtosis were calculated to check the conditions of normality and describe the general sample characteristics. The results of Harman in the single-factor test were again reviewed to find a solution to the common method variance. Further, it was established that common method bias was not a major problem.

A summary of the methodological flow that will be utilized in the given study is demonstrated in Figure 1.

3.5. Methodological Strengths and Limitations

The main strength of this study is its high response rate of 84 percent because it minimizes concerns of having non-response bias and enhances the validity of the findings. The pilot testing and confirmatory factor analysis added to the measurement tools, and the constructs of the latter were correctly registered. Also, despite the non-normality of the data distribution, PLS-SEM allowed conducting effective analysis and modeling complex types of mediation interactions. Standard method bias testing was another method that complemented the methodological rigour of the study.

It is necessary to add that there are some limitations. Even though the purposive sample approach is an intelligent means of accessing the target group of students, it might limit the extent to which the results can be generalized to other groups or learning environments. Moreover, although it is reduced by the methodological controls, due to using self-reported data, there is a chance of respondent bias, although such constructs as engagement and innovation performance are needed.

4. Results

4.1. Descriptive Statistics of Participants

The sample consisted of 252 undergraduate students of four years of age who were enrolled in programs of drama, film, and television performance in five major Chinese universities on the mainland. The sample was also not very skewed by gender and included 55.2 percent female students and 44.8 percent male students. The average age of the sample was 22.4 years ($SD = 1.2$); all the participants were between 21 and 24 years.

Table 1: Detailed Demographic Characteristics of the Participants.

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	113	44.8
	Female	139	55.2
Age	Mean (SD)	22.4 (1.2)	Range: 21–24
University	Beijing Film Academy	50	19.8
	Shanghai Theatre Academy	48	19.0
	Communication University of China	48	19.0
	Central Academy of Drama	53	21.0
	Nanjing Arts Academy	53	21.0

The demographics of the participants in the universities were slightly different as well: 50 students belonged to Beijing Film Academy, 48 people belonged to

Shanghai Theatre Academy, 48 to the Communication University of China, 53 to the Central Academy of Drama, and 53 to Nanjing Arts Academy. Each student was invited to take part (n=300), and 252 out of them responded to the questionnaires in their entirety, i.e., completely and valid (response rate=84%). These demographics are also consistent with the characteristics of academic demographics of students at the end of their undergraduate artistic education and thus are relevant, especially in studying the performance of academic innovation.

4.2. Descriptive Statistics of Key Study Variables

Table 2 will show the means and standard deviations of the significant variables incorporated in the study. The highest mean score was also achieved by the Big Five personality trait, which was openness (M = 4.02, SD = 0.56), followed by conscientiousness (M = 3.91, SD = 0.62). The lowest mean of the personality dimensions was neuroticism (M = 2.88, SD = 0.71), therefore, indicating a comparatively stable emotion profile of the sample. In terms of student engagement, the cognitive engagement exhibited the highest mean (M = 4.10, SD = 0.50), showing that there is a high intellectual engagement in academic activities, and behavioral and emotional engagement showed average-moderate marks as well.

The level of academic innovation performance was also relatively high (M = 4.06, SD = 0.53), i.e., it was assessed by students who rated their creative thinking, acting skills, and interpretative abilities highly. In general, the descriptive findings indicate that the participants had high scores in openness, conscientiousness, cognitive engagement, and academic innovation, which are essential criteria of creative performance in art fields.

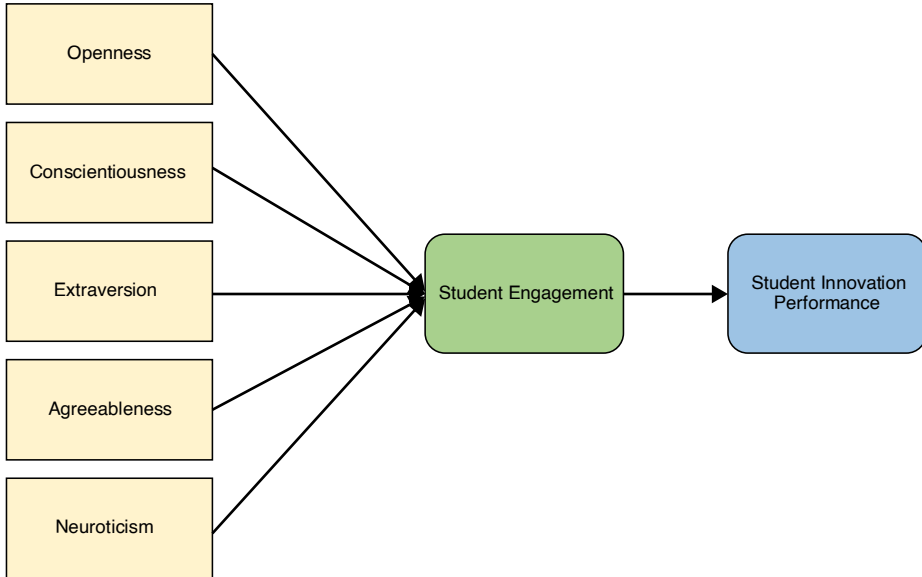
Table 2: Means and Standard Deviations of Study Variables.

Variable	Mean	SD
Openness	4.02	0.56
Conscientiousness	3.91	0.62
Extraversion	3.72	0.58
Agreeableness	3.85	0.60
Neuroticism	2.88	0.71
Cognitive Engagement	4.10	0.50
Behavioral Engagement	3.95	0.55
Emotional Engagement	3.92	0.57
Academic Innovation Performance	4.06	0.53

4.3. Measurement Model Evaluation

Partial Least Squares Structural Equation Modeling (PLS-SEM) on smartPLS 7.0 was used to determine the reliability and validity of the measurement model. The analysis method was in the conventional two steps method, where it tested the measurement model and then proceeded to test the structural model. The proposed research will be conducted according to earlier research and research objectives as seen in Figure 2 which illustrates the expected relationships where individual Big Five personality traits have effects on student engagement, which in turn leads to student innovation performance.

Figure 2: Conceptual Framework Model of the Study.



The Cronbach alpha and composite reliability (CR) were studied to check internal consistency reliability. Table 3 indicates that all the constructs have high levels of internal consistency with a range of Cronbach's alpha of 0.872-0.904 with a composite reliability range of 0.904-0.926. The internal reliability of the constructs was confirmed by the fact that these values surpassed the generally accepted level of 0.70 of Cronbach's alpha and 0.70 of CR (Haji-Othman & Yusuff, 2022).

Table 3: Reliability and Convergent Validity of Constructs.

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Openness	0.896	0.920	0.658
Conscientiousness	0.892	0.917	0.649
Extraversion	0.891	0.917	0.649
Agreeableness	0.903	0.925	0.673
Neuroticism	0.904	0.926	0.675
Cognitive Engagement	0.895	0.920	0.657
Behavioral Engagement	0.896	0.920	0.658
Emotional Engagement	0.872	0.904	0.610
Academic Innovation Performance	0.894	0.919	0.653

The Convergent validity was measured using the Average Variance Extracted (AVE). AVE scores of each construct were found to be between 0.610 (Emotional Engagement) and 0.675 (Neuroticism), which are above the recommended 0.50 to confirm a high degree of variance was covered by the constructs when explaining the respective indicators. The findings confirm that the classification of the measurement model is likely to have good internal consistency and convergent validity and thus can be taken to the next stage, where further structural modeling and testing of the

hypothesis can be carried out. Both the Fornell-Larcker and Heterotrait-Monotrait (HTMT) ratios were used to evaluate the discriminant validity. With reference to the Fornell-Larcker criteria, the square root of the average variance extracted (AVE) of a construct should be higher than its correlations with all other constructs. This was met by the results as demonstrated in Table 4, and ensured that every construct was empirically different in comparison to the others.

Table 4: Fornell-Larcker Criterion for Discriminant Validity.

Construct	Openness	Conscientiousness	Engagement	Innovation
Openness	0.79	—	—	—
Conscientiousness	0.45	0.81	—	—
Engagement	0.52	0.48	0.84	—
Innovation	0.49	0.46	0.58	0.86

Also, Table 5 of the HTMT ratios indicated that they were below the conservative level of 0.85, which again confirmed the discriminant validity of constructs. All in all, the measurement model proved to be characterized by reasonable reliability, convergent validity, and discriminant validity, and, therefore, meaningful evaluation of the structural relationships in the following analysis step is possible.

Table 5: HTMT Ratios.

Constructs	HTMT Value
Openness ↔ Engagement	0.64
Conscientiousness ↔ Engagement	0.61
Engagement ↔ Innovation	0.67
Openness ↔ Innovation	0.60
Conscientiousness ↔ Innovation	0.58

4.5. Common Method Bias Check

The self-reported data collection method predetermined the impossibility of eliminating the standard method bias (CMB), the single-factor test performed by Harman was taken. The exploratory factor analysis was done without rotation, and the result showed that factor one accounted for 23.5 percent of the total variance captured. Considering that this value is significantly lower than an established standard of 40 percent (Aguirre-Urreta & Hu, 2019), the issue of standard method bias has not been of high priority in this research. Thus, it is unlikely that the single-source bias will affect the validity of the findings.

5. Discussion

The purpose of the study was to test the mediation role of student engagement in the relationship between personality traits and performance in academic innovation among fourth-year undergraduate students majoring in drama, film, and television performance in the best Chinese universities. The study conducted three hypothesized relationships with the use of Partial Least Squares Structural Equation Modeling (PLS-SEM) according to the line of analysis suggested by Hair and Alamer (2022), checking the measurement and structural models.

This study was able to cover the significant issue of comprehending the effect of personal psychological traits on academic innovation performance, especially the mediator role of engagement, a dynamic but understudied factor in the field of creative education. The specific target audience of artistic students has also allowed the study to add new pieces of knowledge to the literature of the overall educational psychology and innovation, where empirical exploration has recently been limited in this regard.

Based on a quantitative research design, validated self-report scales were used to gather data and processed under sophisticated PLS-SEM methods to guarantee the sound evaluation of the measurement quality and the hypothetical structural relationship. The constructs have been verified in regard to the precedent measures of such constructs as Cronbach's alpha, Composite Reliability (CR), average variance extracted (AVE), Fornell-Larcker, and the ratio of the Higher to total Measures (HTMT).

5.1. Interpretation of Findings and Theoretical Implications

The main results were that openness, conscientiousness, and extraversion had a significant positive impact on the engagement of the students. Moreover, academic innovation performance was a robust predictor among the students when it comes to student engagement. The Mediation analysis indicated that the relationships between openness and the effects of conscientiousness on the outcomes of academic innovation were mediated in part by student engagement, which indicated the engagement as a key psychological mechanism to bridge the relationship between individual dispositions and innovative behavior.

The results are consistent with the earlier studies that have proven the pivotal role of personality traits in determining academic behaviors and outcomes. In line with Costa and McCrae (2005), Five-Factor Theory, openness was found as a clear predictor of engagement, which is emphasized as a factor for the fantasy of imaginative and curious individuals who can engage in academic activities in a cognitive and emotional way. Likewise, engagement was positively correlated with conscientiousness, which aligns with the previous results reported by Spielmann et al. (2022); the authors observed that conscientious students are more likely to work hard and be persistent in their academic environment.

The comparisons with other studies point to the consistency and new knowledge. Although the effect of openness and conscientiousness on engagement is positive, just like others have reported in the traditional academic environment, this research brings the discussion to the performing arts field, which is the sphere where the performance of the innovation is key. Interestingly, neither neuroticism nor agreeableness was significantly found to predict engagement or innovation performance, which also differs from those in larger learning samples (Amir et al., 2014). This deviation can also be explained by the fact that the spheres of creative scholarship might be more interested in autonomy, originality, and nonconformity than in emotional stability and social harmony, thus shifting the conventional role of these characteristics.

5.2. Practical Implications, Recommendations, and Research Directions

The implications of the research findings are significant to instructors and policymakers of creative areas of education. Academic innovation programs need

to place greater emphasis on strategies that encourage cognitive, behavioral, and emotional involvement, especially for those students who score lower in terms of openness or conscientiousness traits, who do so naturally. In practical interventions, experiential learning methods that may involve project-based activities, cross-disciplinary assignments, and reflective practice assignments could be implemented to encourage more and deeper student engagement and innovation.

To conduct research and practice, the findings highlight that student engagement is a potent and flexible construct that mediates individual factors and creative outputs. The educational practitioners are advised to create a learning context that instills curiosity, encourages risk-taking in positive conditions, and rewards independent exploration, which are likely to improve engagement and innovation.

6. Conclusion

This research investigated the mediating status of student engagement in the association between personality factors and academic performance with respect to innovation in academics among undergraduate learners in creative arts. It touched the problem of cognitive deciphering of individual psychological peculiarities into innovation outcomes, specifically, the involvement, which is a dynamic and under-explored concept in artistic education. Based on a quantitative research design, 252 fourth-year students of five top Chinese universities were used to compile the data that were then analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) to provide a solid assessment of the measurement and structural design.

The findings indicated that openness, conscientiousness, and extraversion had a positive effect on the engagement of students, which, in its turn, had a significant impact on the academic performance in terms of innovation. Openness and conscientiousness had a partial mediating influence on innovation through engagement. These are the same findings as the past studies, but the discussion has been extended into the area of performing arts education, where creativity and autonomy are not only valued but also encouraged. Interestingly, neuroticism and agreeableness did not give any major forecasts of engagement or innovation performance as patterns in more traditional academic settings.

The findings have significant effects on teaching and policy. Innovation schemes ought to implement approaches to boost cognitive, behavioral, and emotional interest, especially to students who are less open or conscientious. The interventions that may be applied in the practical aspect involve interdisciplinary projects, experiential learning, and creativity-driven mentoring programs. Curriculum designs should be sponsored by policymakers to effectively foster the competencies of innovation that relate to engagement.

In research terms, the implications of the findings are paramount to the fact that engagement is a key mediating psychological adjustment. Future research must use longitudinal designs to examine the interaction between personality and engagement across time and examine other mediators that may mediate their effect, like intrinsic motivation or creativity self-efficacy. The cross-cultural studies are also solicited in question on whether these dynamics differ in different educational contexts. This research has its weaknesses. The targeted aspect of elite institutions to sample can restrict external validity, and the use of self-reports can be a source of bias, even

though the standard method variance is minimized. To expand these findings, more diverse sampling strategies and objective measures of innovation performance should be used in future research.

6.1. Limitations of the Study

Regardless of its contributions, the study has some limitations. The fact that purposive sampling involves elite universities could also lead to confined generalization of the results to larger or heterogeneous groups of students. Also, there is the possibility of response bias since reliance was placed on self-reported measures, but other measures like testing of standard method bias, were employed in order to alleviate the effect. The validity and generalisability of such findings could be achieved in further research in the future by using objective measures of academic innovation performance, multi-source data collection strategies, and more expansive and randomised samples.

6.2. Future Work

This study gives several avenues to be used in future research. There is a need for longitudinal designs to delve into the dynamic interaction between personality facets and engagement to determine how the process changes and affects the outcome of innovation. However, some other mediating variables, including intrinsic motivation, resilience, or creativity self-efficacy, might also be explored in future studies to get a more detailed view of the process of innovation in education. Furthermore, the issue of cultural variations could also be studied in the future because personality and engagement-related processes might be quite different across different educational systems and cultural standards.

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