International Journal of Instructional Cases
ISSN: 2399-830x

A Study on the Relationship between Perseverance and Learning Satisfaction among Students

Zhiteng Zhao*
[1]Dr., Department of Educational Administration, International College,
Krirk University, 43/1111 Ram-indra Road, KM.1, Bang Khen, Bangkok, 10220, Thailand.
ORCID iD: https://orcid.org/0009-0003-1858-5393
Email: zhaozhiteng1001@gmail.com

ChiaChing Tu
[2]Professor, Department of Educational Administration, International College,
Krirk University, 43/1111 Ram-indra Road, KM.1, Bang Khen, Bangkok, 10220, Thailand.
ORCID iD: https://orcid.org/0000-0001-9090-1598
Email: tulisa0929@gmail.com

*Corresponding Author Email: zhaozhiteng1001@gmail.com

Received Date: 19-11-2023; Accepted Date: 21-12-2023; Publication Date: 26-01-2024

Abstract
Learning satisfaction is a crucial aspect of the educational experience, significantly affecting student engagement, motivation, and overall performance. However, the specific impact of persistence on learning satisfaction within this unique educational context has not been thoroughly explored. This study explores how student persistence impacts learning satisfaction and the mediating roles of flow experience and motivation. A quantitative research approach was employed, involving 430 students enrolled in higher vocational programs. Data were collected with validated self-reports and analysed using structural equation modelling (SEM). The findings revealed that persistence exerts a significant and positive influence on the learning satisfaction of students in higher vocational programs. Moreover, flow experience and learning motivation were identified as key mediators in this relationship. This study enhances educational psychology by clarifying the factors influencing learning satisfaction. It also enriches existing theoretical frameworks by advancing knowledge of the interplay between persistence, flow experience, learning motivation, and learning satisfaction.

Keywords: Students Learning Satisfaction, Perseverance, Flow Experience, Learning Motivation, Vocational Education.

How to cite (APA):
Zhao, Z., Tu, C. (2024). A Study on the Relationship between Perseverance and Learning Satisfaction among Students. *International Journal of Instructional Cases*, *8*(1), 135-150.

International Journal of Instructional Cases
ISSN: 2399-830x

Introduction

Imagine a learning environment where higher vocational students, each on their unique educational journeys, face a variety of challenges while striving to reach their goals. Within this dynamic setting, perseverance emerges as a critical trait, significantly influencing the satisfaction students derive from their educational experiences. Higher vocational education, which integrates academic knowledge with practical application, equips students with specialized skills tailored to meet workplace demands (Taherkhani et al., 2022). This form of education is essential for preparing the future workforce and bridging the gap between theoretical study and practical application (Dolson & Deemer, 2022). Just as in other educational contexts, the satisfaction of higher vocational students plays a pivotal role in their learning processes and ultimately impacts their success in their chosen careers.

The Chinese education system at the elementary, secondary, and university levels is renowned for its high academic standards and rigorous assessment practices. The national emphasis on science and mathematics reflects a strong commitment to academic excellence. Recently, there has been a shift towards integrating critical thinking and creativity into the curriculum, moving away from traditional rote memorization. Education has long been regarded by many in China as the key to personal and social advancement. The intense competition within the educational system underscores the importance of academic achievement, which is essential for career opportunities and social mobility. The love of learning has a profound impact on student performance and well-being. Academic success is driven by students' motivation, engagement, and efficacy in their studies.

Motivation is a crucial factor that encourages students to pursue and achieve both current and future educational goals. The connection between the enjoyment of learning and the desire to continue further education highlights the role of satisfaction in shaping academic attitudes. Recognizing the value of education enhances students' motivation to persist in their studies, underscoring the importance of supportive learning environments. Student satisfaction and loyalty are closely linked to the quality of services provided by higher education institutions. The educational experience is enriched by skilled educators, well-maintained facilities, and supportive administrative services. High-quality academic services foster student satisfaction, loyalty, and advocacy, thereby enhancing the institution's reputation. Persistence is often a strong predictor of academic success. Overcoming challenges and setbacks through perseverance not only improves academic performance but also contributes to personal growth. Persistent students are able to navigate obstacles and maintain focus, developing resilience that benefits them throughout their educational journey. Student satisfaction is particularly vital in higher education. Satisfied students are more engaged and enthusiastic, which positively impacts their academic performance. Positive educational experiences create a supportive learning

International Journal of Instructional Cases
ISSN: 2399-830x

environment and a sense of belonging within the institution. Students who are content with their education often become loyal alumni who advocate for the university, further enhancing its reputation.

Students who are satisfied with their educational experience are more likely to achieve academic success, sustain their motivation, and pursue further educational aspirations (Bokan et al., 2020). Despite its importance, not all students in higher vocational education are satisfied, and the factors contributing to this variation remain diverse and insufficiently explored. Perseverance is one such factor that has garnered increased attention in educational psychology. It is characterized by tenacity, determination, and the ability to overcome challenges and setbacks (Yu & McLellan, 2020). Perseverance is believed to play a critical role in students' ability to navigate the complexities of higher education, particularly in vocational programs where practical skills and resilience are vital (Tao & Gao, 2022).

Despite the extensive research on student satisfaction in higher vocational education and the importance of perseverance in academic settings, a significant knowledge gap persists in understanding the complex interactions between these factors, particularly within the unique context of the higher vocational education system. The determinants of student satisfaction have been widely studied in the past, encompassing aspects such as teacher effectiveness, course content, and institutional support (Jensen & Rørbæk, 2022). Similarly, research on perseverance has largely focused on its impact on academic achievement and retention, especially within vocational education (Yu & McLellan, 2020; Zhihan, Abd Rahman, & Noor, 2022). However, few studies have thoroughly explored the relationship between perseverance and the multifaceted construct of learning satisfaction among higher vocational students in this specific geographic and educational context (Steuber, Nisly, & M. Gillette, 2019). Understanding how these factors mediate or modify the relationship between perseverance and learning satisfaction is crucial for developing effective educational interventions tailored to the unique needs and challenges faced by students in this environment (Casali, Feraco, & Meneghetti, 2023; Shuyan & WenZe, 2024).

This study examines how perseverance affects learning satisfaction among vocational students, focusing on the roles of flow experience and learning motivation. The objectives of this work are as follow:

- To determine the extent to which perseverance influences learning satisfaction among higher vocational students in Jinan City.
- To explore whether flow experience mediates the relationship between perseverance and learning satisfaction, elucidating the psychological processes through which perseverance impacts satisfaction.
- To examine whether learning motivation mediates the relationship between perseverance and learning satisfaction, shedding light on the motivational

International Journal of Instructional Cases
ISSN: 2399-830x

pathways that underlie the influence of perseverance.

This study holds significant potential for advancing both the field of higher vocational education and the broader discipline of educational psychology. This research explores how perseverance, flow, motivation, and satisfaction impact vocational students' educational experiences, providing insights for improving learning satisfaction and well-being through targeted strategies. By illuminating the complex interplay of factors that influence students' satisfaction with their educational experiences, these findings have the potential to inform and refine existing theories, offering a deeper understanding of the dynamics that underpin student happiness in educational settings.

Literature Review

Perseverance and Learning Satisfaction

In the field of education, perseverance is often defined as the persistent effort and resolve to achieve goals despite facing challenges and setbacks, and it has garnered significant attention (Nishikawa, Kusumi, & Shirakawa, 2022). Persistence is associated with academic success (Huéscar Hernández et al., 2020). Students who master difficult tasks and overcome obstacles tend to derive more satisfaction from their learning experiences (Flayelle et al., 2022). The self-regulation and self-determination theories emphasize the role of perseverance in learning satisfaction (Kam et al., 2020). These theories suggest that persistent individuals are more intrinsically motivated to learn, with intrinsic motivation linked to a sense of autonomy and genuine interest in the subject matter (Adnan & Šišić, 2022; Huéscar Hernández et al., 2020). Based on this understanding, the hypothesis proposed in this study is that higher vocational students who persist through the learning process and are not deterred by difficulties are more likely to enjoy learning and experience a higher level of satisfaction.

Flow Experience as a Mediator

In the context of learning satisfaction within educational settings, the concept of flow experience—characterized by a profound sense of engagement and immersion in an activity—has gained significant prominence. An increasing body of evidence highlights the crucial mediating role that flow experience may play in the relationship between perseverance and learning satisfaction. According to Bitrián, Buil and Catalán (2020), individuals experience flow when they are faced with challenges that closely match their skills and abilities. Achieving this state of flow often requires perseverance, as it involves sustained effort to meet the challenge and reach a high level of engagement. The idea that perseverance contributes to flow experience during learning activities is supported by Kam et al. (2020). Students with higher levels of perseverance are more likely to confront and overcome academic challenges, thereby

International Journal of Instructional Cases
ISSN: 2399-830x

enhancing their likelihood of experiencing flow. In this context, flow acts as a mediator between perseverance and learning satisfaction, as students who achieve flow during their educational pursuits report higher levels of satisfaction (Ashraf & Alanezi, 2022; Hohnemann et al., 2022). Moreover, it is well established that flow experiences and learning satisfaction are interconnected. Students are more likely to perceive their academic experiences as highly fulfilling when they are in a state of flow during their learning activities, which supports the role of flow as a mediator in the relationship between perseverance and learning satisfaction.

Learning Motivation as a Mediator

A key mediator in the relationship between perseverance and learning satisfaction has been identified as learning motivation, characterized by the desire and drive to engage in educational activities (Aladhub & Abdel-Dhalmi, 2023; Benbunan-Fich & Hiltz, 2003). According to Flayelle et al. (2022), students with higher levels of perseverance are more motivated to pursue their educational goals. Their commitment to overcoming obstacles and achieving their objectives increases their intrinsic motivation, fostering a genuine interest in learning. This intrinsic motivation, in turn, is closely linked to learning satisfaction, as intrinsically motivated students tend to be more satisfied with the learning process (Ali et al., 2022; Bari, Karande, & Menezes, 2022; Cao et al., 2023). Furthermore, substantial evidence connects learning motivation to learning satisfaction. Students who are more motivated to learn invest greater effort and enthusiasm into their academic pursuits, thereby enhancing their satisfaction (Albarq et al., 2022; Quiroga-Garza et al., 2020). This positive feedback loop suggests that perseverance influences motivation both directly and indirectly, which subsequently affects learning satisfaction. Based on the discussion and existing literature, we have developed the conceptual framework illustrated in Figure 1.

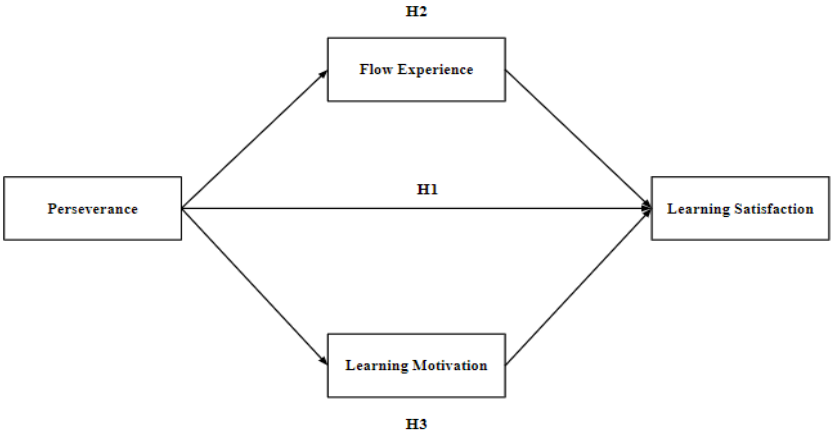

Figure 1: Conceptual Framework.

Methodology

The research employed data to investigate the influence of effort on students enrolled

International Journal of Instructional Cases
ISSN: 2399-830x

in vocational programs in Jinan City, Shandong Province. This approach was utilized to collect practical information and rigorously analyse the relationships between various factors. The study specifically targeted students from vocational schools in Jinan City due to their diverse participation in vocational education programs, which facilitated an in-depth exploration of the research topics. A sample size of 430 participants was determined based on considerations of desired confidence levels, acceptable margins of error, and the estimated number of individuals exhibiting the characteristics under study. Stratified random sampling was employed to select students from Jinan City. This method, while having certain limitations, was chosen for its alignment with the study's objectives. Stratified random sampling ensured that students from various vocational training areas were adequately represented, as the population was divided into distinct strata based on their fields of study. This approach enhanced the accuracy of analyses within subgroups and ensured that findings were generalizable to all higher vocational students in the region. A survey was developed to collect data from the selected participants, incorporating questions designed to measure perseverance, engagement, motivation, and learning satisfaction. Trained assistants administered the survey in groups or classes, providing clear instructions and ensuring the confidentiality of responses to promote honest and unbiased answers. Data analysis was conducted using Amos, selected for its capacity to handle complex structural models. Amos was preferred for its flexibility in examining direct and indirect effects, as well as its user-friendly graphical interface that facilitated the creation and modification of model diagrams. The software's robust capabilities in model estimation, fit assessment, and hypothesis testing were crucial for a thorough examination of the relationships between perseverance, flow experience, learning motivation, and learning satisfaction.

Results

Table 1 and Figure 2 illustrate the measurement properties of various constructs within the research model, ensuring the accuracy and reliability of the study's results. The FE construct was assessed using items FE1 to FE5, all of which demonstrated robust correlations with the flow experience variable. This indicates that these items are effective in measuring the flow experience. The combined reliability for this construct was high (α = 0.915), suggesting strong internal consistency. Additionally, the VIF score of 1.641 indicated minimal multicollinearity among the items, confirming their distinct contribution to the measurement of flow experience. Perseverance was measured using items P1 to P5, which also exhibited strong correlations with the perseverance construct. The overall reliability for perseverance was high (α = 0.917), reflecting its consistency. The VIF score of 1.867 suggested that multicollinearity among the items was not problematic. LM was evaluated through items LM1 to LM6, with an overall reliability of 0.829. All items displayed strong correlations with learning motivation, indicating their effectiveness in representing this construct. Student learning satisfaction was measured with items showing

International Journal of Instructional Cases
ISSN: 2399-830x

loadings between 0.789 and 0.832, demonstrating strong associations with the satisfaction construct. The overall reliability for learning satisfaction was high (α = 0.880), exceeding the acceptable threshold of 0.70, indicating consistency. The VIF value of 1.863 for this construct also suggested that multicollinearity was not a significant issue. These findings confirm that the measurement instruments used in the study are reliable and accurately capture the constructs of interest.

Table 1: Construct Reliability and Validity.

Construct	Items	Factor Loading	VIF	Alpha
Flow Experience	FE1	0.638	1.641	0.915
	FE2	0.697		
	FE3	0.695		
	FE4	0.682		
	FE5	0.711		
Perseverance	P1	0.705	1.867	0.917
	P2	0.626		
	P3	0.764		
	P4	0.619		
	P5	0.748		
Learning Motivation	LM1	0.730	2.932	0.829
	LM2	0.677		
	LM3	0.718		
	LM4	0.506		
	LM5	0.576		
	LM6	0.696		
Learning Satisfaction	LS1	0.577	1.863	0.880
	LS2	0.670		
	LS3	0.648		
	LS4	0.719		

Table 2 provides the discriminant validity analysis essential for ensuring the distinctiveness of each construct in the study. The analysis reveals that Perseverance (P) exhibits relatively low shared variance with other constructs, showing correlations of 0.493 with PAP, 0.355 with LM, 0.498 with FE, and 0.514 with LS, indicating that Perseverance is distinct from the other dimensions. PAP demonstrates moderate discriminant validity with correlations of 0.493 with Perseverance, 0.659 with LM, 0.888 with FE, and 0.599 with LS. Despite the high correlation with FE, PAP remains moderately unique from other variables, particularly Perseverance and LM. LM shows moderate to strong discriminant validity, with a high correlation of 0.659 with PAP but lower correlations with Perseverance (0.355), FE (0.511), and LS (0.615), highlighting its distinctiveness. FE maintains some degree of distinctiveness with correlations of 0.498 with

International Journal of Instructional Cases
ISSN: 2399-830x

Perseverance, 0.888 with PAP, 0.511 with LM, and 0.434 with LS, signifying that FE is a separate factor with relatively lower overlap with LS. LS demonstrates moderate differences from other constructs, with correlations of 0.514 with Perseverance, 0.599 with PAP, 0.615 with LM, and 0.434 with FE, affirming its distinct role in relation to the other dimensions. Overall, the discriminant validity analysis supports the distinctiveness of each construct, confirming their unique contributions within the research model.

Table 2: Discriminant Validity (HTMT).

	P	LM	FE	LS
P				
LM	0.355			
FE	0.498	0.511		
LS	0.514	0.615	0.434	

Note: FE= Flow Experience, P= Perseverance, LM= Learning Motivation, LS= Learning Satisfaction.

Goodness-of-Fit Statistics

Table 3 presents the model fit indices, which are crucial for evaluating the reliability and validity of the study. The Chi-Square to Degrees of Freedom ratio (χ^2/DF) is a key indicator of model fit, with values below 3 generally considered acceptable. The reported χ^2/DF value of 1.365 is well below this threshold, suggesting that the model fits the data effectively (Yaşlıoğlu & Toplu Yaşlıoğlu, 2020). The GFI and AGFI measure the model's alignment with the sample data. Although ideal values exceed 0.9, values between 0.7 and 0.9 are also acceptable (Guennouni et al., 2022).

Table 3: Model Fitness.

Fitting Coefficient	Evaluation Criteria		Actual Value	Fitting Situation
	Good	Acceptable		
X2/DF	<3	3.0-5.0	1.365	Good
GFI	>0.9	0.7-0.9	0.753	Acceptable
AGFI	>0.9	0.7-0.9	0.724	Acceptable
CFI	>0.9	0.7-0.9	0.753	Acceptable
RMR	Close to 0	<0.5	0.026	Acceptable
TLI	>0.9	0.7-0.9	0.721	Good
RMSEA	<0.008	0.008-0.1	0.043	Good

The GFI and AGFI values of 0.753 and 0.724, respectively, indicate a good fit of the model to the data. The CFI assesses the model's fit relative to another model, with scores above 0.9 indicating an excellent fit and scores between 0.7 and 0.9

International Journal of Instructional Cases
ISSN: 2399-830x

suggesting an acceptable fit (Guennouni et al., 2022). The CFI value of 0.753 reflects a reasonable fit. The actual RMR value of 0.026 meets this criterion. The Tucker-Lewis Index (TLI) compares the model to a null model, with values between 0.7 and 0.9 indicating an acceptable fit. The TLI value of 0.721 falls within this range. Lastly, the RMSEA estimates the error in approximating the population covariance matrix, with values below 0.08 considered good and those between 0.08 and 0.1 acceptable (Hwang & Park, 2022). The RMSEA value of 0.043 confirms a good fit for the study model. Overall, the model fit indices collectively demonstrate that the model aligns well with the data.

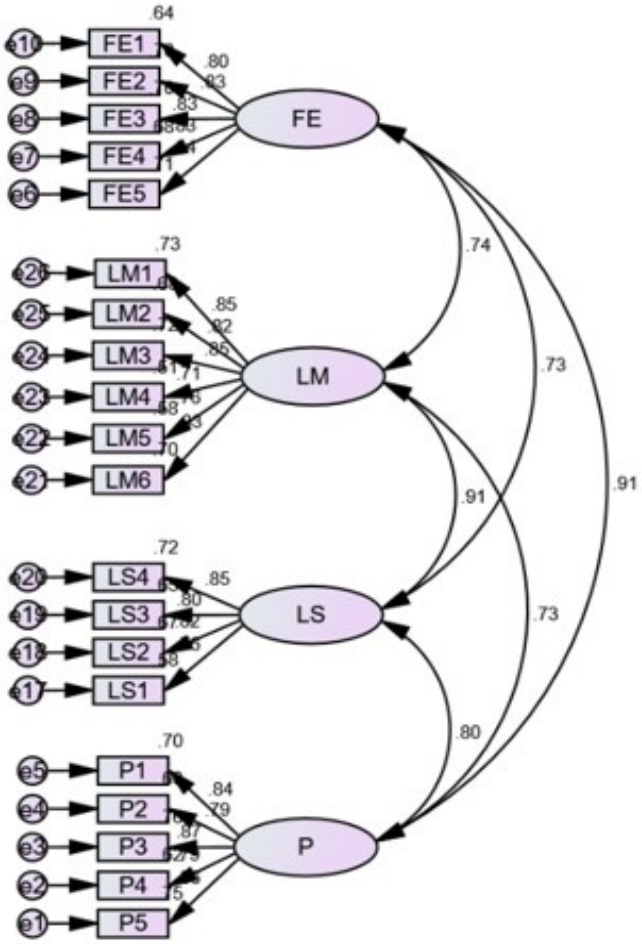

Figure 2: Measurement Model.

Structural Model

Table 4 and Figure 3 display the results of a comprehensive path analysis that examines the relationships and effects among the key constructs of P, FE, LM, and LS. The analysis provides detailed coefficients, CR, p-values, and interpretations for each hypothesis. Hypothesis H1 reveals a positive and statistically significant relationship between perseverance and learning satisfaction, with a coefficient of 0.286, a CR of 9.812, and a p-value of 0.000, indicating that greater perseverance is associated with increased learning satisfaction. Hypothesis H2 demonstrates that flow experience

International Journal of Instructional Cases
ISSN: 2399-830x

significantly mediates the relationship between perseverance and learning satisfaction, with an effect size of 0.323, a CR of 7.925, and a p-value of 0.000, suggesting that flow experience enhances the impact of perseverance on learning satisfaction. Hypothesis H3 shows that learning motivation significantly moderates the indirect effect of perseverance on learning satisfaction, with a correlation of 0.593, a CR of 12.206, and a p-value of 0.000, highlighting that learning motivation plays a crucial role in the link between perseverance and learning satisfaction.

Table 4: Path Analysis.

Hypothesis	Path	Coefficient	Critical Ratio (CR)	P value	Result
H1	P -> LS	0.286	9.812	0.000	Accepted
H2	P -> FE -> LS	0.323	7.925	0.000	Accepted
H3	P -> FE -> LS	0.593	12.206	0.000	Accepted

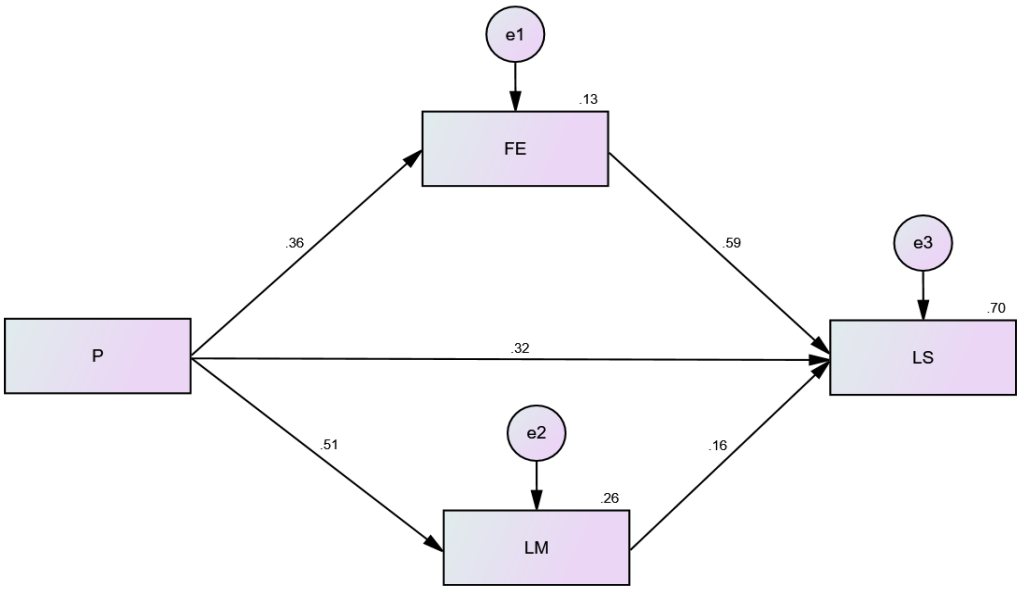

Figure 3: Structural Model.

Discussion

According to Hypothesis 1 (H1), higher levels of perseverance are expected to lead to greater learning satisfaction. The results of this study strongly support H1, demonstrating that perseverance positively and significantly impacts students' overall satisfaction with their educational experiences. Students who exhibit higher levels of perseverance are more likely to persist through challenging academic tasks, overcome obstacles, and achieve their learning goals (Pritts, 2023). They often experience a sense of accomplishment and fulfilment as they navigate the difficulties of their educational journey.

The study's findings provide robust evidence supporting Hypothesis 2, which posits that learning satisfaction and perseverance are connected through flow experience.

International Journal of Instructional Cases
ISSN: 2399-830x

This mediation effect aligns with flow theory, which suggests that individuals with higher levels of perseverance are more likely to experience flow during learning activities (Hyun, Thavisay, & Lee, 2022). Flow, characterized by deep immersion and focused engagement in a task, typically occurs when the challenge of the task aligns with a person's skill level (Chaker, Bouchet, & Bachelet, 2022). Students who exhibit perseverance, associated with persistence and determination, are better equipped to navigate challenges and maintain effort. Consequently, they are more likely to achieve the balance necessary for experiencing flow in their educational pursuits. Furthermore, flow experience has been linked to higher levels of learning satisfaction (Brannon Barhorst et al., 2021). Students who experience flow report increased awareness, satisfaction, and a sense of accomplishment, all of which significantly contribute to their overall satisfaction with the learning process (Björklund, Fridlund, & Mårtensson, 2019). Thus, the enhanced quality of the learning experience due to flow can be attributed to the mediating role of flow experience in the relationship between perseverance and learning satisfaction.

The results of this study provide compelling evidence for Hypothesis 3, which proposes that learning motivation mediates the relationship between perseverance and learning satisfaction. This mediation effect is supported by established theories and empirical evidence linking motivation, perseverance, and learning outcomes. Specifically, the theory underlying Hypothesis 3 is that an individual's motivation to learn is significantly influenced by perseverance, defined as tenacity and resilience in the face of challenges (Santana-Monagas & Núñez, 2022). The internal drive to overcome obstacles and achieve academic objectives aligns with the principles of self-determination theory, which asserts that individuals with higher intrinsic motivation are more engaged and driven in their learning activities (Feng & Papi, 2020; Li et al., 2023). Consequently, students who are more motivated tend to have higher levels of satisfaction with their educational experiences. Thus, the mediating role of learning motivation in the relationship between perseverance and learning satisfaction highlights how motivation enhances the overall quality of the learning experience.

The study's results offer strong support for Hypothesis 4, which posits that learning satisfaction is mediated by flow experience. This mediation effect is consistent with flow theory, which suggests that individuals with higher perseverance are more likely to experience flow during learning activities (Hyun et al., 2022). Flow, characterized by deep immersion and focused engagement in a task, typically occurs when there is a balance between task difficulty and an individual's skill level (Chaker et al., 2022). Perseverant students, defined by their resilience and determination, are better equipped to navigate challenges and sustain their efforts, thereby achieving the equilibrium necessary for experiencing flow. Additionally, flow experience has been linked to higher levels of learning satisfaction, as students who achieve flow report enhanced focus, satisfaction, and a sense of accomplishment (Björklund et al., 2019; Brannon Barhorst et al., 2021). Thus, the enhanced quality of the learning experience

International Journal of Instructional Cases
ISSN: 2399-830x

resulting from flow supports its mediating role in the relationship between perseverance and learning satisfaction.

The study's findings provide compelling evidence in support of Hypothesis 5, which posits that learning motivation mediates the relationship between perseverance and learning satisfaction. This mediation effect aligns with established theories and empirical evidence regarding motivation, perseverance, and learning outcomes. Specifically, perseverance, characterized by tenacity and resilience in the face of challenges, significantly influences an individual's motivation to learn (Santana-Monagas & Núñez, 2022). Students demonstrating high levels of perseverance are more likely to pursue their academic goals with enthusiasm and a genuine desire to succeed, reflecting their internal drive to overcome obstacles (Li et al., 2023). These findings are consistent with self-determination theory, which asserts that individuals with higher intrinsic motivation are more engaged and driven in their learning activities (Feng & Papi, 2020).

Implication

Practical Implications

The findings of this study offer valuable implications for educators, students, and policymakers. For educators, the results highlight the importance of fostering perseverance among students, particularly in higher education, given its significant impact on learning satisfaction. Strategies such as implementing resilience-building programs, providing mentorship, and offering guidance on setting and achieving academic and personal goals could be beneficial. By focusing on developing students' perseverance, educators can help them navigate challenges more effectively, leading to enhanced satisfaction with their educational experiences. Additionally, curriculum design plays a crucial role. Educators should aim to create engaging and challenging learning environments that align with students' skills and abilities. Employing autonomy-supportive teaching methods and goal-oriented learning activities can further boost students' intrinsic motivation, contributing to a more fulfilling educational experience.

Limitations and Future Direction

Limitations

This research work offers useful insights into higher vocational education but has several limitations. The findings, based on students in Jinan City, Shandong Province, may not be broadly applicable. The cross-sectional design limits the ability to establish causation or track changes over time; longitudinal or experimental studies are needed for a deeper understanding. Self-report measures may introduce biases, so combining these with objective assessments could improve accuracy. Additionally, while validated scales were used, future research could benefit from developing context-specific measurement tools.

International Journal of Instructional Cases
ISSN: 2399-830x

Future Directions

Several potential avenues for future research emerge from these limitations. Expanding the study to include diverse geographic regions and educational settings could enhance the generalizability of the findings. Investigating the effects of perseverance on learning satisfaction in varied social and economic contexts could provide a more comprehensive understanding. Longitudinal research designs are recommended to explore the causal relationships and enduring impacts of perseverance, flow experience, learning motivation, and learning satisfaction. Future studies might also focus on intervention research, developing and implementing strategies to enhance motivation, flow experience, and perseverance, and evaluating their impact on learning satisfaction. Additionally, creating context-specific measurement tools tailored to the unique aspects of higher vocational education could improve the accuracy and relevance of future evaluations.

Conclusion

This study explored the impact of perseverance on learning satisfaction among vocational students in Jinan City, Shandong Province. The findings reveal that persistence and resilience significantly enhance students' enjoyment and overall satisfaction with their education. Additionally, the research highlights the role of flow experience and learning motivation in mediating the effects of perseverance, offering new insights into how these factors contribute to students' positive learning experiences. These insights are valuable for educators and institutions aiming to improve vocational education by fostering environments that support perseverance and motivation.

References

Adnan, M., & Šišić, H. (2022). American Philanthropic Foundations and their Role in Modernizing Post-Ottoman Türkiye. *Croatian International Relations Review, 28*(91). https://cirrj.org/menuscript/index.php/cirrj/article/view/677

Aladhub, I. A. Y., & Abdel-Dhalmi, K. I. (2023). The Impact of Force Majeure Provisions and Commercial Issues on Health Legal Ramifications: Moderating the Role of Public Health Emergency Situations. *International Journal of Cyber Criminology, 17*(2), 188-202. https://cybercrimejournal.com/menuscript/index.php/cybercrimejournal/article/view/206

Albarq, A. N., Kumar, S., Piaralal, L., Bhatti, M. A., & Abd Razak, A. Z. A. B. (2022). Impact of Internet Celebrity Endorsements and Social Media Influencers on the Creation of Brand Image and Sales Through Social Media. *The Journal of Modern Project Management, 10*(2), 396-407. https://journalmodernpm.com/manuscript/index.php/jmpm/article/view/569

Ali, M. H., Ahmed, M., Al Karaawi, N. J. M., Algaragolle, W. M. H., Alkhafaji, M., & Abdulaziz, H. M. (2022). The Limitations of Iraq's Freedom of Press and Communicative Media Censorship. *International Journal of Criminal Justice Sciences,*

International Journal of Instructional Cases
ISSN: 2399-830x

17(1), 122-133. https://ijcjs.com/menu-script/index.php/ijcjs/article/view/477

Ashraf, M. W., & Alanezi, F. (2022). Sustainable Eating Futures: A Case Study in Saudi Arabia. *Future of Food: Journal on Food, Agriculture and Society, 11*(1), 1-8. https://doi.org/10.17170/kobra-202204136024

Bari, P., Karande, P., & Menezes, J. (2022). Simulation of Job Sequencing for Stochastic Scheduling with a Genetic Algorithm. *Operational Research in Engineering Sciences: Theory and Applications, 5*(3), 17-39. https://doi.org/10.31181/060722075b

Benbunan-Fich, R., & Hiltz, S. R. (2003). Mediators of the effectiveness of online courses. *IEEE Transactions on Professional Communication, 46*(4), 298-312. https://doi.org/10.1109/TPC.2003.819639

Bitrián, P., Buil, I., & Catalán, S. (2020). Flow and business simulation games: A typology of students. *The International Journal of Management Education, 18*(1), 100365. https://doi.org/10.1016/j.ijme.2020.100365

Björklund, M., Fridlund, B., & Mårtensson, J. (2019). Experiences of psychological flow as described by people diagnosed with and treated for head and neck cancer. *European Journal of Oncology Nursing, 43*, 101671. https://doi.org/10.1016/j.ejon.2019.09.012

Bokan, I., Buljan, I., Marušić, M., Malički, M., & Marušić, A. (2020). Predictors of academic success and aspirations in secondary nursing education: A cross-sectional study in Croatia. *Nurse Education Today, 88*, 104370. https://doi.org/10.1016/j.nedt.2020.104370

Brannon Barhorst, J., McLean, G., Shah, E., & Mack, R. (2021). Blending the real world and the virtual world: Exploring the role of flow in augmented reality experiences. *Journal of Business Research, 122*, 423-436. https://doi.org/10.1016/j.jbusres.2020.08.041

Cao, Y., Gong, S.-Y., Wang, Y.-Q., Zheng, Q., & Wang, Z. (2023). How to provide competitors in educational gamification: The roles of competitor level and autonomous choice. *Computers in Human Behavior, 138*, 107477. https://doi.org/10.1016/j.chb.2022.107477

Casali, N., Feraco, T., & Meneghetti, C. (2023). Keep going, keep growing: A longitudinal analysis of grit, posttraumatic growth, and life satisfaction in school students under COVID-19. *Learning and Individual Differences, 105*, 102320. https://doi.org/10.1016/j.lindif.2023.102320

Chaker, R., Bouchet, F., & Bachelet, R. (2022). How do online learning intentions lead to learning outcomes? The mediating effect of the autotelic dimension of flow in a MOOC. *Computers in Human Behavior, 134*, 107306. https://doi.org/10.1016/j.chb.2022.107306

Dolson, J. M., & Deemer, E. D. (2022). The Relationship Between Perceived Discrimination and School/Work–Family Conflict Among Graduate Student-Parents. *Journal of Career Development, 49*(1), 174-187. https://doi.org/10.1177/0894845320916245

Feng, L., & Papi, M. (2020). Persistence in language learning: The role of grit and future self-guides. *Learning and Individual Differences, 81*, 101904. https://doi.org/10.1016/j.lindif.2020.101904

International Journal of Instructional Cases
ISSN: 2399-830x

Flayelle, M., Elhai, J. D., Maurage, P., Vögele, C., Brevers, D., Baggio, S., et al. (2022). Identifying the psychological processes delineating non-harmful from problematic binge-watching: A machine learning analytical approach. *Telematics and Informatics, 74*, 101880. https://doi.org/10.1016/j.tele.2022.101880

Guennouni, M., Admou, B., Elkhoudri, N., Bouchrit, S., Ait Rami, A., Bourrahouat, A., et al. (2022). Quality of life of Moroccan patients with celiac disease: Arabic translation, cross-cultural adaptation, and validation of the celiac disease questionnaire. *Arab Journal of Gastroenterology, 23*(4), 246-252. https://doi.org/10.1016/j.ajg.2022.06.009

Hohnemann, C., Schweig, S., Diestel, S., & Peifer, C. (2022). How feedback shapes flow experience in cognitive tasks: The role of locus of control and conscientiousness. *Personality and Individual Differences, 184*, 111166. https://doi.org/10.1016/j.paid.2021.111166

Huéscar Hernández, E., Moreno-Murcia, J. A., Cid, L., Monteiro, D., & Rodrigues, F. (2020). Passion or Perseverance? The Effect of Perceived Autonomy Support and Grit on Academic Performance in College Students. *International Journal of Environmental Research and Public Health, 17*(6), 2143. https://doi.org/10.3390/ijerph17062143

Hwang, W. J., & Park, E. H. (2022). Developing a structural equation model from Grandey's emotional regulation model to measure nurses' emotional labor, job satisfaction, and job performance. *Applied Nursing Research, 64*, 151557. https://doi.org/10.1016/j.apnr.2021.151557

Hyun, H., Thavisay, T., & Lee, S. H. (2022). Enhancing the role of flow experience in social media usage and its impact on shopping. *Journal of Retailing and Consumer Services, 65*, 102492. https://doi.org/10.1016/j.jretconser.2021.102492

Jensen, H., & Rørbæk, L. L. (2022). Smoothing the path to practice: Playful learning raises study happiness and confidence in future roles among student teachers and student ECE teachers. *Studies in Educational Evaluation, 74*, 101156. https://doi.org/10.1016/j.stueduc.2022.101156

Kam, H.-J., Menard, P., Ormond, D., & Crossler, R. E. (2020). Cultivating cybersecurity learning: An integration of self-determination and flow. *Computers & Security, 96*, 101875. https://doi.org/10.1016/j.cose.2020.101875

Li, J., Yang, Z., Qi, R., Tan, M., Ji, X., Hou, B., et al. (2023). Psychometric evaluation of the Chinese version of motivation for nursing student scale (MNSS): A quantitative and cross-sectional design. *Nurse Education in Practice, 71*, 103690. https://doi.org/10.1016/j.nepr.2023.103690

Nishikawa, K., Kusumi, T., & Shirakawa, T. (2022). The effect of two aspects of grit on developmental change in high school students' academic performance: Findings from a five-wave longitudinal study over the course of three years. *Personality and Individual Differences, 191*, 111557. https://doi.org/10.1016/j.paid.2022.111557

Pritts, T. A. (2023). 2022 Central Surgical Association presidential address: Grit and resilience in surgery. *Surgery, 173*(3), 562-566. https://doi.org/10.1016/j.surg.2022.11.034

Quiroga-Garza, M. E., Flores-Marín, D. L., Cantú-Hernández, R. R., Eraña Rojas, I. E.,

International Journal of Instructional Cases
ISSN: 2399-830x

& López Cabrera, M. V. (2020). Effects of a vocational program on professional orientation. *Heliyon, 6*(4), e03860. https://doi.org/10.1016/j.heliyon.2020.e03860

Santana-Monagas, E., & Núñez, J. L. (2022). Predicting students' basic psychological need profiles through motivational appeals: Relations with grit and well-being. *Learning and Individual Differences, 97*, 102162. https://doi.org/10.1016/j.lindif.2022.102162

Shuyan, X., & WenZe, X. (2024). A Study on the Mechanism of the Influence of Cultural Traits of Private Universities on the Innovative Behavior of Teaching Staff. *Eurasian Journal of Educational Research, 110*(110), 164-182. https://ejer.com.tr/manuscript/index.php/journal/article/view/1664

Steuber, T. D., Nisly, S. A., & M. Gillette, C. (2019). Grit in pharmacy faculty: A pilot analysis focused on productivity measures. *Currents in Pharmacy Teaching and Learning, 11*(10), 1029-1034. https://doi.org/10.1016/j.cptl.2019.06.009

Taherkhani, B., Aliasin, S. H., Khosravi, R., & Izadpanah, S. (2022). The Interface Between Metacognitive Strategy Training and Locus of Control in Developing EFL Learners' Listening Comprehension Skill. *Frontiers in Education, 7*, 847564. https://doi.org/10.3389/feduc.2022.847564

Tao, J., & Gao, X. (2022). Teaching and learning languages online: Challenges and responses. *System, 107*, 102819. https://doi.org/10.1016/j.system.2022.102819

Yaşlıoğlu, M., & Toplu Yaşlıoğlu, D. (2020). How and When to Use Which Fit Indices? A Practical and Critical Review of the Methodology. *Istanbul Management Journal*, (88), 1-20. https://doi.org/10.26650/imj.2020.88.0001

Yu, J., & McLellan, R. (2020). Same mindset, different goals and motivational frameworks: Profiles of mindset-based meaning systems. *Contemporary Educational Psychology, 62*, 101901. https://doi.org/10.1016/j.cedpsych.2020.101901

Zhihan, H., Abd Rahman, K. A. A., & Noor, M. S. M. (2022). The Interrelationship between Brand Personality, Brand Trust and Consumers' Purchase Intention: A Structural Equation Modelling Approach. *International Journal of Operations and Quantitative Management, 28*(3), 32-42. https://submissions.ijoqm.org/index.php/ijoqm/article/view/125