Advances in Consumer Research
https://acr-journal.com/
Volume-3 | Issue-6 | Jan 2026
Original Researcher Article

Do Education Students in Wetland Areas Choose Their Majors Based on Interests and Aptitudes?

Nina Permata Sari[1], Hendro Yulius Suryo Putro[2], Hamsi Mansur[2]
[1,2] Lambung Mangkurat University, Guidance and Counseling Department, Indonesia
Email ID : nina.bk@ulm.ac.id, hendro.putro@ulm.ac.id, hamsi.mansur@ulm.ac.id

ABSTRACT
Higher education is essential in preparing students for the workforce by aligning their academic choices with their interests and aptitudes. This study examines whether students in wetland regions select majors based on their interests and aptitudes or external pressures. Conducted at Faculty of Teacher Training and Education Lambung Mangkurat University with 300 students, data were collected offline using the Differential Aptitude Test (DAT) and Rothwell-Miller Interest Blank (RMIB). Results show interest significantly influences major selection ($\beta = 0.72$, $p < 0.01$) over aptitude ($\beta = 0.45$, $p < 0.05$). The findings highlight the need for early career counseling to support informed academic decisions
Keywords: Academic major selection, Vocational interests, Aptitudes, Career counseling, Wetland education, Higher education

1. INTRODUCTION:

Higher education plays a crucial role in preparing students to enter the workforce in alignment with their skills, interests, and talents (Chau et al., 2023). Choosing an academic major is one of the most critical decisions students make, as it directly impacts their career path and personal development (Ladinsky, 2016). In regions with unique ecological characteristics, such as wetland areas, selecting a major becomes even more complex due to the interplay of economic opportunities, environmental constraints, and individual preferences (Du et al., 2024). Understanding the factors that influence students' academic choices in these regions is essential for designing policies that align educational outcomes with labor market demands (Hodgman, 2018).

One of the key determinants in choosing a major is the alignment between students' interests and talents with their chosen field of study (Chau et al., 2023). Students who select a major based on their interests tend to exhibit higher academic motivation, better performance, and greater perseverance in their studies (Tiernan, 2015). Conversely, a mismatch between personal aspirations and academic programs often leads to dissatisfaction, low engagement, and higher dropout rates (Du et al., 2024). Vocational interests can be classified into various fields, including mechanical, scientific, social, artistic, and practical domains, providing insights into students' educational choices (Hodgman, 2018). However, research on the application of these vocational tendencies among students in wetland areas remains limited (Sadeghzadeh et al., 2015), despite the fact that the local economy in these regions may be dominated by specific industries such as fisheries, agriculture, and environmental conservation (Behle et al., 2015).

Although extensive research has been conducted on career decision-making in urban and industrial settings (Super, 1957) (Lent et al., 1994), studies on higher education choices in wetland areas remain scarce (Nelson et al., 2016). Given the distinctive socio-economic and environmental conditions of these regions (Stern et al., 2019), it is crucial to investigate whether students make academic choices based on their intrinsic interests and talents (Eccles & others, 2005) or if external factors, such as parental expectations and labor market trends, play a more dominant role in shaping their decisions (Savickas, 2013) (Krumboltz, 1994) Studies in educational psychology and differential aptitude testing suggest that, beyond cognitive abilities, non-cognitive factors such as personality traits and environmental influences also contribute to students' career decisions (Ackerman & Heggestad, 1997). The Differential Aptitude Test and Rothwell-Miller Interest Blank (RMIB) have been widely used to assess individual talents and preferences, offering valuable insights into career alignment (Lubinski & Benbow, 2000). However, these assessment tools have not been extensively applied to analyze students' educational pathways in wetland regions.

This study aims to analyze whether students in wetland areas choose their majors based on their interests and talents or if they are more influenced by external pressures. By using a combination of psychometric assessment tools and survey methods, this research seeks to provide empirical evidence on the extent to which vocational interests and talents align with students' academic choices (Schmidt & Hunter, 1998). The findings are expected to offer valuable insights for curriculum developers, policymakers (Keller & Keller, 2010), and career counselors (Patton & McMahon, 2006) in designing more effective guidance systems to optimize students' potential in wetland-based educational institutions.

MATERIALS AND METHODS

Research design

This study employs a quantitative research design with a survey approach to analyze whether students at the Faculty of Teacher Training and Education at Lambung

Mangkurat University choose their majors based on their interests and talents or are more influenced by external factors. This approach was selected as it allows for large-scale data collection and analysis, providing a comprehensive understanding of the alignment between academic choices and individual preferences.

The research is conducted at the beginning of the odd semester of the 2024 academic year, aiming to collect data from first-year students who have recently selected their majors. Data collection is carried out simultaneously in an offline setting to ensure uniform psychological conditions among respondents, minimizing potential biases that could affect the research outcomes.

Location and respondents

This study is conducted at the Faculty of Teacher Training and Education at Lambung Mangkurat University. The selection of this location is based on the consideration that Faculty of Teacher Training and Education offers a diverse range of academic programs, allowing for a comprehensive analysis of the relationship between students' interests, talents, and their choice of major. Additionally, as an educational institution that prepares future educators, Faculty of Teacher Training and Education is a relevant setting for examining how students select their fields of study, which will ultimately influence their careers in the education sector.

The study involves 300 students from various academic programs within Faculty of Teacher Training and Education at Lambung Mangkurat University. Respondents are selected using a proportional stratified random sampling method to ensure balanced representation from each study program within Faculty of Teacher Training and Education.

Research instruments

This study utilizes two validated assessment tools: the Differential Aptitude Test (DAT) and the Rothwell-Miller Interest Blank (RMIB) (Aritonang et al., 2020). These instruments were chosen due to their extensive use in educational psychology and career counseling research to measure vocational aptitudes and interests (Fatuhrahmah et al., 2020).

Differential Aptitude Test (DAT) is used to assess students' academic abilities and cognitive potential across various dimensions, including verbal ability, numerical reasoning, mechanical reasoning, spatial visualization, and abstract reasoning (Toit, 2015). The test has been widely implemented in career decision-making interventions (Sodhi et al., 2016), and its predictive validity has been analyzed in specialization selection (Aritonang et al., 2020).

Rothwell-Miller Interest Blank (RMIB) is employed to identify students' interests in various occupational fields, such as scientific, social, artistic, and technical domains (Rini et al., 2021). The RMIB test has been adapted for digital platforms with AI enhancements to improve career recommendations (Hutomo et al., 2020). It has also been used to evaluate the career readiness of students in different educational settings (Waghmode et al., 2024).

Since both assessment tools have been validated in previous research, this study does not conduct additional validation but directly applies the instruments to measure students' aptitudes and vocational interests (Zemzami & Lotfi, 2024). This approach ensures reliability in assessing academic and vocational compatibility for students (Fernandes et al., 2022).

Research procedure

The research process is carried out systematically, following these steps: (1) preparation: this phase involves designing the research framework, obtaining research permits from the Faculty of Teacher Training and Education at Lambung Mangkurat University, and determining the research sample based on department stratification within Faculty of Teacher Training and Education, (2) data collection: data is gathered through an offline session conducted in a classroom setting. Respondents complete the Differential Aptitude Test (DAT) and Rothwell-Miller Interest Blank (RMIB) under the supervision of the research team to ensure accuracy in responses, and (3) data processing and analysis: the collected test results are coded and entered into statistical software. Structural Equation Modeling (SEM) is then employed to analyze the relationships between students' interests, aptitudes, and their choice of major.

Data analysis techniques

The data analysis process is conducted in several stages as follows: (1) descriptive statistical analysis – Mean (M) and Standard Deviation (SD) are used to describe the distribution characteristics of the DAT and RMIB test results (Stoffels et al., 2023). This step helps visualize the distribution of major selection at Faculty of Teacher Training and Education based on students' interest and aptitude groups (Bose, 2018), (2) inferential analysis using Structural Equation Modeling (SEM) – SEM is employed to examine the relationship between the independent variables (interests and aptitudes) and the dependent variable (major selection) (Fauzi, 2017). The SEM model is developed based on theoretical relationships among RMIB results, DAT scores, and students' academic choices (Awang, 2015), and (3) Goodness-of-Fit Model Testing – The developed SEM model is evaluated using several fit indices, including Chi-Square (χ^2), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI) to ensure the model's adequacy and validity (Jung, 2018) . Additionally, SEM has been widely applied in career and educational research to assess complex relationships (Tomarken, 2015). The use of SEM in academic choice modeling provides insights into latent constructs that influence decision-making (Kwok et al., 2019). Furthermore, recent methodological advancements have enhanced the robustness and accuracy of SEM applications (Cheung, 2021).

RESULTS

Descriptive analysis of test results

The research findings indicate variations in students' major selection based on the results of the Differential Aptitude Test (DAT) and the Rothwell-Miller Interest

Blank (RMIB). The distribution of these test results is presented in Table 1 below:

Table 1. Distribution of DAT and RMIB test results

Variable	Mean (M)	Standard Deviation (SD)
Verbal ability (DAT)	85.6	12.4
Numerical ability (DAT)	78.3	10.8
Spatial ability (DAT)	82.1	11.6
Social interest (RMIB)	4.2	1.1
Scientific interest (RMIB)	3.9	1.3
Technological interest (RMIB)	3.5	1.2

Based on the table, students exhibit a higher tendency in verbal ability compared to numerical and spatial abilities, aligning with their role as future educators. Meanwhile, students' highest interest is in the social domain, reflecting a strong alignment with the education field and interpersonal interactions.

To illustrate the distribution of major selection based on test results, Figure 1 below presents a comparison between DAT and RMIB scores and students' major choices.

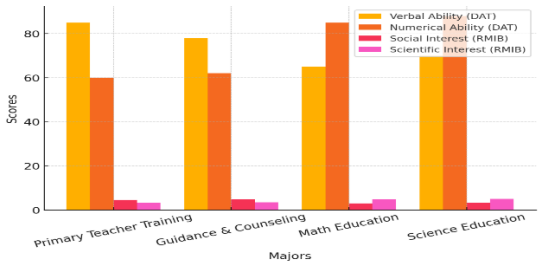

Figure 1. Distribution of DAT and RMIB test results on major selection

From Figure 1, it is evident that most students with high social interest scores tend to choose Primary Teacher Training and Guidance and Counseling majors. Meanwhile, students with a strong scientific interest are more likely to select Mathematics Education and Science Education as their academic programs.

Inferential Analysis Using Structural Equation Modeling (SEM)

To understand the relationship between interests, aptitudes, and major selection, inferential analysis using Structural Equation Modeling (SEM) was conducted. The SEM model, developed based on the theoretical relationships among RMIB results, DAT scores, and students' major selection, is illustrated in Figure 2 below:

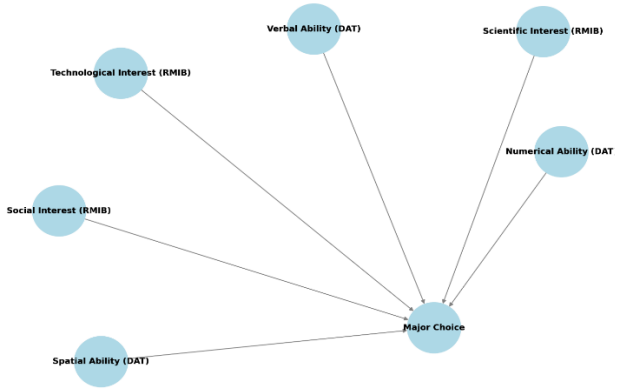

Figure 2. SEM model representing relationships among variables

This SEM model is evaluated using several Goodness-of-Fit indicators, presented in Table 2 below:

Table 2. SEM Model Goodness-of-Fit

Indicator	Cut-off value	Model result	Description
Chi-Square (χ^2)	$p > 0.05$	0.062	Fit
RMSEA	< 0.08	0.047	Good Fit
CFI	> 0.90	0.93	Good Fit
TLI	> 0.90	0.91	Good Fit

The Goodness-of-Fit evaluation results indicate that the developed model exhibits a good fit with the empirical data, making it suitable for analyzing the relationships among the variables.

Relationship between interests and major selection

Based on Structural Equation Modeling (SEM) analysis, it was found that students' interests have a significant influence on their major selection, with a standardized coefficient of $\beta = 0.72$, $p < 0.01$. This result indicates that students are more likely to choose a major aligned with their interests rather than being influenced by external factors.

Relationship between aptitudes and major selection

On the other hand, aptitude, as measured by the Differential Aptitude Test (DAT), has a weaker influence on major selection, with a standardized coefficient of $\beta = 0.45$, $p < 0.05$. This indicates that while aptitude plays a role in academic decision-making, interest remains the more dominant factor in students' major choices.

DISCUSSION

The findings of this study reveal that students tend to choose majors based on their interests rather than their aptitudes (Panggoa et al., 2023). Intrinsic factors, such as personal interests, have a stronger influence on academic decision-making compared to external factors (Achamrah, 2022). This suggests that students are more inclined to pursue fields they are passionate about, even if their

academic aptitudes may be better suited for other disciplines (Zainuba et al., 2023). Therefore, it is essential to strengthen career guidance systems based on students' interests from the beginning of their university studies (Liao & Ji, 2015). This approach can help students make more informed decisions regarding their majors and maximize both their academic and professional potential in the future (Evans, 2016).

Although interest is the primary factor in major selection, aptitude still plays a role, albeit to a lesser extent (Liang et al., 2023). Students with high numerical aptitude tend to select majors such as Mathematics and Science Education (Afriat et al., 2017), whereas those with strong verbal abilities are more likely to choose Primary Teacher Training and Guidance and Counseling (Franklin et al., 2021). This indicates that while interest is the dominant factor, there is still a tendency for academic aptitude to be considered in certain fields (Feng, 2022). Therefore, aptitude assessments, such as the Differential Aptitude Test (DAT), remain relevant in helping students understand their academic strengths and make more optimal decisions regarding their major choices (SalahJaradat, 2015).

From an educational policy perspective, these findings provide a foundation for higher education institutions to develop more structured academic career counseling programs (Mardenova et al., 2023). Universities could consider integrating aptitude and interest assessments into their student selection processes (Nazmul & Akter, 2023). By doing so, major selection would not only be based on students' subjective preferences but also supported by objective data regarding their academic and vocational compatibility (Liu et al., 2021). This strategy is expected to help students develop their potential more effectively during their studies and enhance their preparedness for entering the workforce in fields that align with their skills and interests (Lowinger & Song, 2017).

CONCLUSION

The findings of this study confirm that education students in wetland areas tend to choose their majors based on their interests rather than their academic aptitudes. SEM analysis indicates that interest has a greater influence on major selection than aptitude, although both factors still play a role in academic decision-making. The implications of these findings highlight the importance of implementing a more systematic interest assessment process in academic guidance programs to enhance the alignment between students' academic choices and their future potential.

.

REFERENCES

1. Achamrah, M. (2022). Factors influencing Moroccan University students' choice of academic majors: Mohammed V University, FLHS in Rabat as a case study. World Journal of Advanced Research and Reviews. https://doi.org/10.30574/wjarr.2022.14.2.0414
2. Ackerman, P. L., & Heggestad, E. D. (1997). Intelligence, personality, and interests: evidence for overlapping traits. Psychological Bulletin, 121(2), 219.
3. Afriat, A., Main, J., & Ebrahiminejad, H. (2017). Factors Influencing First Year Undergraduate Students to Choose an Engineering Major. https://consensus.app/papers/factors-influencing-first-year-undergraduate-students-to-afriat-main/10796a6ab10e5b909820e2c9f1a44ee5/
4. Aritonang, N., NyomanDegeng, I., & Ramli, T. (2020). Differential Talent Test and Lee-Thorpe Interest Test: Study of Predictive Validity in Specialization of High School Students. https://doi.org/10.4108/eai.17-12-2019.2295995
5. Awang, Z. (2015). SEM Made Simple: A Gentle Approach to Learning Structural Equation Modeling. https://consensus.app/papers/sem-made-simple-a-gentle-approach-to-learning-structural-awang/b5a5cbd8a8365bc88e4f9f83cc8c9e63/
6. Behle, H., Atfield, G., Elias, P., Gambin, L., Green, A., Hogarth, T., Purcell, K., Tzanakou, C., & Warhurst, C. (2015). Reassessing the employment outcomes of higher education. 114–131. https://doi.org/10.4324/9781315675404-7
7. Bose, P. (2018). Applications of Structural Equation Modeling in Consumer Choice Studies. https://consensus.app/papers/applications-of-structural-equation-modeling-in-consumer-bose/9c8192b381f751c1871534ded22006e0/
8. Chau, H., Bana, S., Bouvier, B., & Frank, M. (2023). Connecting higher education to workplace activities and earnings. PLOS ONE, 18. https://doi.org/10.1371/journal.pone.0282323
9. Cheung, M. (2021). Structural Equation Modeling (SEM)-Based Meta-Analysis. https://doi.org/10.31234/OSF.IO/93NFR
10. Du, B., Li, X., Liu, S., & Lai, Y. (2024). Strategies for Developing Pre-Employment Adaptability from a High-Quality Employment Perspective: An Analysis of College Students' Job Preparation Behaviors. World Journal of Educational Research. https://doi.org/10.22158/wjer.v11n3p22
11. Eccles, J. S., & others. (2005). Subjective task value and the Eccles et al. model of achievement-related choices. Handbook of Competence and Motivation, 105, 121.
12. Evans, J. (2016). An Examination of the College Major Decisions of Students at the University of Mississippi. https://consensus.app/papers/an-examination-of-the-college-major-decisions-of-students-evans/eb718dc978c15b0b94d4229bce6e78d2/
13. Fatuhrahmah, U., Darusmin, D. F., & Widiana, H. (2020). The intertwining of vocational aptitude and interest: A study among university students in Indonesia. 3, 44–52. https://doi.org/10.33292/petier.v3i1.58

14. Fauzi, M. (2017). Application of structural equation modeling (SEM) in quantitative research. https://consensus.app/papers/application-of-structural-equation-modeling-sem-in-fauzi/2b3a61d7936856bf91be441b66748332/
15. Feng, Z. (2022). Study on the Influencing Factors of Undergraduate Students' Major Choice. Proceedings of the 2022 2nd International Conference on Enterprise Management and Economic Development (ICEMED 2022). https://doi.org/10.2991/aebmr.k.220603.057
16. Fernandes, R., George, C., Poobalrayer, E., Dias, J., & Narkar, N. (2022). Career Guidance Website with Aptitude Test. International Journal for Research in Applied Science and Engineering Technology. https://doi.org/10.22214/ijraset.2022.47490
17. Franklin, M., Moyne, L., Myers, J., & Lepak, G. (2021). Influencing Factors on the Choice of College Business School Major. Journal of Higher Education Theory and Practice. https://doi.org/10.33423/jhetp.v21i6.4380
18. Hodgman, M. (2018). Employers' Perspectives on the Performance of Higher Education Institutions in Preparing Graduates for the Workplace: A Review of the Literature. Business and Economic Research. https://doi.org/10.5296/BER.V8I3.13370
19. Hutomo, A. T., Nasrun, M., & Setianingsih, C. (2020). Web-Based Psychological Rothwell Miller Interest Blank (RMIB) Test using Fuzzy Method. 2020 IEEE International Conference on Industry 4.0, Artificial Intelligence, and Communications Technology (IAICT), 107–112. https://doi.org/10.1109/IAICT50021.2020.9172036
20. Jung, Y.-M. (2018). Structural Equation Modeling of Nursing Students' Career Preparation Behavior. Transylvanian Review, 1. https://consensus.app/papers/structural-equation-modeling-of-nursing-students-%E2%80%99-career-jung/bf7b0d704b295da3ba72be043adefaa6/
21. Keller, J. M., & Keller, J. M. (2010). Motivational design research and development. Motivational Design for Learning and Performance: The ARCS Model Approach, 297–323.
22. Krumboltz, J. D. (1994). The career beliefs inventory. Journal of Counseling & Development, 72(4), 424–428.
23. Kwok, O.-M., Cheung, M., Jak, S., Ryu, E., & Wu, J.-Y. (2019). Recent Advancements in Structural Equation Modeling (SEM): From Both Methodological and Application Perspectives. Frontiers Research Topics. https://doi.org/10.3389/978-2-88945-743-4
24. Ladinsky, J. (2016). Higher Education and Work Achievement. https://consensus.app/papers/higher-education-and-work-achievement-ladinsky/fbc8de34e5b35ac7a26a92c36cb76cc2/
25. Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. Journal of Vocational Behavior, 45(1), 79–122.
26. Liang, Q., Liu, J., & Zhou, Y. (2023). The Influence of Family Factors on Students Choice of Major. Lecture Notes in Education Psychology and Public Media. https://doi.org/10.54254/2753-7048/12/20230835
27. Liao, C., & Ji, C.-H. (2015). The Origin of Major Choice, Academic Commitment, and Career-Decision Readiness Among Taiwanese College Students. Career Development Quarterly, 63, 156–170. https://doi.org/10.1002/CDQ.12011
28. Liu, Y., Li, J., Zhu, Y., & Chen, T. (2021). A Study on Main Factors Influencing Major Choice of Nanjing Audit University Students. Journal of Higher Education Research. https://doi.org/10.32629/jher.v2i5.493
29. Lowinger, R., & Song, H.-A. (2017). Factors Associated with Asian American Students' Choice of STEM Major. Journal of Student Affairs Research and Practice, 54, 415–428. https://doi.org/10.1080/19496591.2017.1345754
30. Lubinski, D., & Benbow, C. P. (2000). States of excellence. American Psychologist, 55(1), 137.
31. Mardenova, L., Yessimzhanova, S., & Tabari, S. (2023). Discourse to the Factors of Decision-making of Students in Choosing a University Major. Eurasian Journal of Economic and Business Studies. https://doi.org/10.47703/ejebs.v67i4.291
32. Nazmul, Md., & Akter, N. (2023). Determinants of academic major choice: a comparative study of business programs in Bangladesh. International Journal of Research in Business and Social Science (2147- 4478). https://doi.org/10.20525/ijrbs.v12i9.3032
33. Nelson, J. S., Grande, T. C., & Wilson, M. V. H. (2016). Fishes of the World. John Wiley & Sons.
34. Panggoa, E., Sitihamra, Susantiy, S., Octamaya, A., & Awaru, T. (2023). Factors that Influence Student Interest in Choosing a Major in Higher Education. Formosa Journal of Applied Sciences. https://doi.org/10.55927/fjas.v2i12.7252
35. Patton, W., & McMahon, M. (2006). The systems theory framework of career development and counseling: Connecting theory and practice. International Journal for the Advancement of Counselling, 28, 153–166.
36. Rini, M. S., Mz, I., & Erawati, D. (2021). MINAT REMAJA DITINJAU DARI TES MINAT ROTHWELL MILLER INTEREST BLANK (RMIB) DI LEMBAGA KESEJAHTERAAN SOSIAL ANAK (LKSA) KOTA PALANGKA RAYA. JURNAL BIMBINGAN DAN KONSELING AR-RAHMAN. https://doi.org/10.31602/jbkr.v7i2.5669
37. Sadeghzadeh, A., Nassiriyar, M., Haghshenas, M., & Shahbazi, R. (2015). Higher Education Job Satisfaction and Relevance to Workforce. https://consensus.app/papers/higher-education-job-satisfaction-and-relevance-to-sadeghzadeh-nassiriyar/7593be9225fa5aa4a000623c8d58978d/
38. SalahJaradat, M. (2015). What's Really Matter When Choosing a College Major! https://consensus.app/papers/what-%E2%80%99-s-really-matter-when-choosing-a-college-major-salahjaradat/5541efe53e415c51a5d7c3e4fa726cf1/
39. Savickas, M. L. (2013). Career construction theory and practice. Career Development and Counseling:

Putting Theory and Research to Work, 2, 144–180.
40. Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. Psychological Bulletin, 124(2), 262.
41. Sodhi, J., Dutta, M., & Aggarwal, N. (2016). Efficacy of Artificial Neural Network based Decision Support System for Career Counseling. Indian Journal of Science and Technology, 9. https://doi.org/10.17485/IJST/2016/V9I32/100738
42. Stern, S. A., Weaver, H. A., Spencer, J. R., Olkin, C. B., Gladstone, G. R., Grundy, W. M., Moore, J. M., Cruikshank, D. P., Elliott, H. A., McKinnon, W. B., & others. (2019). Initial results from the New Horizons exploration of 2014 MU69, a small Kuiper Belt object. Science, 364(6441), eaaw9771.
43. Stoffels, M., Torre, D., Sturgis, P., Koster, A., Westein, M., & Kusurkar, R. (2023). Steps and decisions involved when conducting structural equation modeling (SEM) analysis. Medical Teacher, 45, 1343–1345. https://doi.org/10.1080/0142159X.2023.2263233
44. Super, D. E. (1957). The psychology of careers; an introduction to vocational development. Harper & Bros.
45. Tiernan, B. (2015). THE ROLE OF HIGHER EDUCATION IN PRECOLLEGE PREPARATION FOR UNDERREPRESENTED STUDENTS. https://consensus.app/papers/the-role-of-higher-education-in-precollege-preparation-for-tiernan/657ec3dd5d29517287fe4a084c793eb0/
46. Toit, A. (2015). An evaluation of a possible increase in self-knowledge through a career counselling intervention for grade 11 learners in previously disadvantaged schools. https://consensus.app/papers/an-evaluation-of-a-possible-increase-in-selfknowledge-toit/b7f1af786d355877b6962c2843a30b50/
47. Tomarken, A. (2015). Structural Equation Modeling. 1–12. https://doi.org/10.1002/9781118625392.WBECP384
48. Waghmode, Dr. M. L., Awati, D., & Shukla, Dr. M. (2024). Synergizing Aptitude, Interest, and Intelligence: A Systematic Approach to Career Selection Decision-making in Higher Education. Journal of Engineering Education Transformations. https://doi.org/10.16920/jeet/2024/v37is2/24026
49. Zainuba, M., Rahal, A., Kutlubay, O., & Wright, J. (2023). Students' choice of major: An approach for academic advising. Journal of Education for Business, 98, 502–510. https://doi.org/10.1080/08832323.2023.2232922
50. Zemzami, M., & Lotfi, S. (2024). Development and Initial Validation of a Career Preference Scale (CPS-15F): An Underlying Model of Holland's Theory for Measuring Career Interests. Islamic Guidance and Counseling Journal. https://doi.org/10.25217/0020247439200
.

.