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Original Paper

Attachment Styles as Predictors of Academic Engagement in Nontraditional Graduate Students

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Abstract

This study examined the relationship between adult attachment styles (secure, anxious, and avoidant) and academic engagement, encompassing behavioral, emotional, and cognitive aspects, among non-traditional graduate students. Although Attachment Theory has been widely applied to interpersonal functioning, its role in academic engagement among adult learners remains underexplored. Using a cross-sectional design, 145 participants completed the Attachment Style Questionnaire (ASQ), the University Student Engagement Inventory (USEI), and a demographic survey. A one-way multivariate analysis of variance (MANOVA) revealed that attachment style significantly predicted all three engagement domains. Students with secure attachment reported higher behavioral ($F(1, 143) = 81.9$, $p < .001$), emotional ($F(1, 143) = 247.4$, $p < .001$), and cognitive ($F(1, 143) = 138.4$, $p < .001$) engagement than those with insecure styles. These findings extend Attachment Theory into higher education by showing that attachment security enhances academic functioning in adult learners, and suggest attachment-informed support strategies may improve engagement and reduce attrition.

Keywords: attachment theory, student engagement, nontraditional students, secure attachment, higher education, academic persistence, adult learners

1. Introduction

The academic engagement of nontraditional graduate students, those balancing advanced education with employment, caregiving, and other adult responsibilities, has become a growing focus in higher education research (Gurantz, 2022; Leggins, 2021; Tumuheki et al., 2024). Despite their increasing representation in graduate programs, these students often encounter psychological and structural challenges that are insufficiently addressed by institutional supports primarily designed for traditional students (Remenick, 2019; Sánchez-Gelabert, 2020). Identifying psychological variables that influence engagement is therefore critical to fostering persistence and success in this diverse population. Attachment Theory, developed by Bowlby (1969, 1980), offers a robust framework for understanding how early caregiver-child interactions shape enduring patterns of emotion regulation, interpersonal behavior, and stress response, which persist into adulthood and influence how individuals navigate both social and academic environments. Secure attachment, characterized by trust, emotional availability, and self-efficacy, has been linked to increased help-seeking, enhanced emotional regulation, and greater academic persistence (Fagan, 2020; Gore & Rogers, 2010; Thompson et al., 2022). Conversely, insecure attachment styles, such as anxious (marked by dependency and fear of abandonment) and avoidant (marked by emotional detachment and mistrust), have been associated with disengagement, academic avoidance, and maladaptive coping strategies (Baradaran & Ranjbar-Noushari, 2021; Eckstein-Madry et al., 2021).

Although attachment theory has traditionally been applied in developmental and clinical contexts, its relevance to educational outcomes is increasingly recognized. In higher education, securely attached students have demonstrated greater classroom participation, stronger faculty relationships, and more consistent academic motivation (Dereli & Karakuş, 2011; Fearon & Roisman, 2017; Sung et al., 2020). Emotional, behavioral, and cognitive engagement, defined respectively as affective investment, observable participation, and strategic mental effort, are critical predictors of academic achievement and retention (Jimenez-Liso et al., 2022; Kahu & Nelson, 2018). However, few studies have examined how attachment styles may influence these engagement dimensions, particularly among nontraditional adult learners who face unique relational and situational stressors (Bumbacco & Scharfe, 2023; Griffin, 2020; Matthews et al., 2011).

Emerging evidence suggests that insecurely attached students may underutilize institutional support services and struggle with classroom interaction, especially in environments lacking psychological safety or responsive mentorship (Harbour et al., 2015; Suri et al., 2019; Xerri et al., 2018). These difficulties are likely to be exacerbated in nontraditional learners, who often encounter competing demands and lower institutional visibility (Courtner, 2019; Goulet et al., 2021). Consequently, understanding how attachment style predicts engagement among adult learners can inform inclusive academic policies and relationally informed support strategies.

This study addresses a critical gap by quantitatively examining the relationship between adult attachment styles (secure, anxious, avoidant) and academic engagement (behavioral, emotional, cognitive) among nontraditional graduate students in the United States. Drawing on Bowlby's Attachment Theory, the study also examines how demographic variables, such as age, gender, and employment status, may moderate these associations. The findings aim to inform attachment-sensitive interventions and institutional practices that promote persistence and success for this increasingly prominent student population.

This study employed a quantitative, cross-sectional approach to assess whether adult attachment style significantly predicts academic engagement in nontraditional graduate students. The findings demonstrated that students with secure attachment reported significantly higher behavioral, emotional, and cognitive engagement than those with insecure attachment styles.

2. Method

This quantitative, cross-sectional study examined whether adult attachment styles (secure, anxious, avoidant) predicted academic engagement across behavioral, emotional, and cognitive domains among nontraditional graduate students. Guided by Bowlby's Attachment Theory, the study utilized a one-way multivariate analysis of variance (MANOVA) to test group differences. Participants were 145 nontraditional graduate students currently enrolled in U.S.-based graduate programs. Eligibility required being at least 24 years old and meeting at least one nontraditional criterion, including delayed postsecondary enrollment, part-time attendance, financial independence, full-time employment, caregiving responsibilities, or a break between undergraduate and graduate study. Participants were recruited through SurveyMonkey's participant panel using non-probability convenience sampling, which may limit the generalizability of the findings to broader graduate student populations. A priori power analysis using G*Power 3.1.9.7 ($\alpha = .05$, power = .95, medium effect size $f = .30$) indicated a minimum sample of 111 participants.

Three instruments were employed:

- **Attachment Style Questionnaire – Short Form (ASQ):** Assessed secure, anxious, and avoidant attachment styles on a 6-point Likert scale. Cronbach's alpha ranged from .76 to .85 (Feeney et al., 1994; Iwanaga et al., 2020).
- **University Student Engagement Inventory (USEI):** Measured behavioral, emotional, and cognitive engagement on a 5-point scale. Internal consistency values were 0.85 (behavioral), 0.88 (emotional), and 0.86 (cognitive) (Maroco et al., 2016).
- **Demographic survey:** Captured age, gender, race/ethnicity, marital status, employment, and economic background. These variables were explored for use as covariates.

Although self-report instruments are vulnerable to social desirability and recall biases, they remain standard for assessing internal states such as attachment and engagement.

After obtaining Institutional Review Board approval from Walden University (IRB #09-30-241056552), participants received an email invitation, reviewed the informed consent form, and completed the anonymous online survey. No incentives were provided. Data were securely stored and de-identified.

Participants were categorized into two groups based on ASQ scores: secure (57.9%, n = 84) and insecure (42.1%, n = 61), with the insecure group combining anxious and avoidant styles. This binary classification aligns with prior research cautioning against the loss of variability, but it allows for more apparent statistical contrasts (Altman & Royston, 2006).

Descriptive statistics summarize sample characteristics. Pearson correlations examined relationships among variables. Before conducting MANOVA, assumptions were tested: multivariate normality (Kolmogorov–Smirnov), homogeneity of variance-covariance matrices (Box's M), and equal variances (Levene's tests). Although Kolmogorov–Smirnov tests indicated non-normality (p < .001) and Levene's test revealed unequal variances for behavioral engagement (F(1,143) = 6.58, p = .011), MANOVA is generally robust to such violations given balanced groups and sufficient sample size (Razali & Wah, 2011; Tabachnick & Fidell, 2019). Three multivariate outliers, exceeding the Mahalanobis distance $\chi^2(3) = 16.27$ at $p < .001$ (n = 3), were retained to preserve analytic power.

A one-way MANOVA was used to test the effect of attachment style on combined engagement dimensions. Univariate ANOVAs followed significant multivariate effects, and post hoc tests were adjusted for the Bonferroni correction. All analyses were conducted using IBM SPSS Statistics.

Figure 1 illustrates the conceptual framework for the current study, depicting how adult attachment styles were hypothesized to influence academic engagement across behavioral, emotional, and cognitive domains.

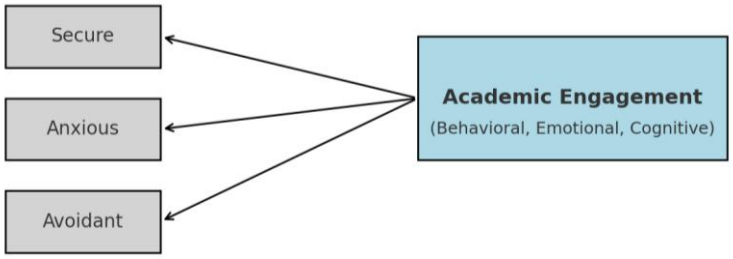

Figure 1
Conceptual model illustrating how adult attachment styles are hypothesized to influence behavioral, emotional, and cognitive engagement among nontraditional graduate students, with demographic variables explored as potential moderators.

3. Results

This study investigated whether adult attachment styles significantly predict behavioral, emotional, and cognitive engagement among nontraditional graduate students. Data analysis included descriptive statistics, Pearson correlations, assumption testing, and a one-way multivariate analysis of variance (MANOVA) to assess group differences by attachment style. The following sections summarize participant characteristics, relationships among variables, and the outcomes of hypothesis testing.

Participant Characteristics

The sample consisted of 145 non-traditional graduate students. Participants were evenly divided by gender (49.7% male, 50.3% female), spanned a wide age range, and were predominantly White (90.3%). Most were employed full-time (91%) and reported middle or high economic status. See Table 1 for detailed demographics.

Table 1
Descriptive characteristics of participants (N = 145)

Variable		***n***	**%**
Gender			
	Male	72	49.7
	Female	73	50.3
Age			
	18-24	6	4.1
	25-34	35	24.1
	35-44	42	29.0
	45-54	40	27.6
	55-64	16	11.0
	65+	6	4.1
Ethnicity			
	White	131	90.3
	Hispanic	1	0.7
	Black/African American	5	3.4
	Asian	8	5.5
Relationship status			
	Single	10	6.9
	Married	132	91.0
	Living with parent/parents	2	1.4
	Separated	1	0.7
Employment status			
	Full-time	132	91.0
	Part-time	9	6.2
e	None	4	2.8
Economic status			
	High	66	45.5
	Middle	75	51.7
	Low	4	2.8

Note. Percentages may not total 100 due to rounding.

Attachment Style Classification

Participants were categorized into two groups based on ASQ scores: secure (57.9%, n = 84) and insecure (42.1%, n = 61), with the latter group comprising both anxious and avoidant attachment styles. This binary classification approach aligns with previous research (Altman & Royston, 2006) to facilitate statistical comparisons.

Descriptive Engagement Scores

Higher scores represent greater engagement, based on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Students with secure attachments reported higher engagement across all dimensions. Table 2 presents the mean scores for behavioral, emotional, and cognitive engagement in the secure, anxious, and avoidant subgroups. Scores were measured on a 5-point Likert scale, with higher values indicating greater engagement.

Table 2
Mean engagement scores by attachment style

Attachment style	Behavioral engagement	Emotional engagement	Cognitive engagement
Secure	4.21	4.40	4.30
Avoidant	3.56	3.70	3.65
Anxious	3.60	3.75	3.68

Note. Higher scores indicate greater engagement, as measured on a 5-point Likert scale.

Correlation Analysis

Secure attachment was positively and significantly associated with behavioral (r = 0.464), emotional (*r* = 0.595), and cognitive (*r* = 0.539) engagement, with *p*-values of less than 0.001 for all ($p < 0.001$ for all). Avoidant and anxious styles also correlated with engagement, but with weaker coefficients. See Table 3 for the full correlation matrix among key variables.

Table 3
Correlation matrix of key study variables

Variable	1	2	3	4	5	6
1. Behavioral	—					
2. Emotional	.669**	—				
3. Cognitive	.717**	.677**	—			
4. Secure attachment	.464**	.595**	.539**	—		
5. Avoidant attachment	.410**	.650**	.469**	.673**	—	
6. Anxious attachment	.461**	.675**	.483**	.703**	.860**	—

Note. **$p < .01$.

Assumption Testing

Tests for multivariate normality (Kolmogorov–Smirnov) indicated significant deviations across engagement variables ($p < .001$). Levene's test revealed unequal variances for behavioral engagement ($F(1,143) = 6.58$, $p = .011$), but assumptions were met for emotional and cognitive engagement. Multivariate outliers identified by Mahalanobis distance were retained to preserve analytic power. Although the Kolmogorov–Smirnov test indicated violations of normality, MANOVA is robust to such deviations when sample sizes are sufficiently large and group sizes are approximately equal (Razali & Wah, 2011; Tabachnick & Fidell, 2019).

MANOVA Results

A one-way MANOVA was conducted to assess whether attachment style significantly influenced the combined dependent variables. The analysis revealed a significant multivariate effect of attachment style on engagement: Pillai's Trace = 0.164, $F(3,141) = 9.22$, $p < .001$, partial $\eta^2 = .164$. Table 4 summarizes the MANOVA results.

Table 4
MANOVA summary for effects of attachment style on engagement outcomes

Effect	Pillai's Trace	*F*	*df*	*p*	Partial η^2
Attachment style	0.164	9.22	3, 141	< .001	0.164

Note. MANOVA indicates a significant multivariate effect of attachment style on engagement outcomes, with a moderate effect size.

Follow-Up ANOVAs

Univariate ANOVAs were conducted for each engagement dimension. Attachment style significantly predicted behavioral ($F(1,143) = 81.9$, $p < .001$), emotional ($F(1,143) = 247.4$, $p < .001$), and cognitive ($F(1,143) = 138.4$, $p < .001$) engagement, with emotional engagement showing the most substantial effect (partial $\eta^2 = .155$). See Table 5 for full results.

Table 5
Univariate ANOVA results by engagement dimension

Dependent variable	*F*(1,143)	*p*	Partial η^2
Behavioral engagement	81.9	< .001	0.107
Emotional engagement	247.4	< .001	0.155
Cognitive engagement	138.4	< .001	0.100

Note. All three engagement dimensions were significantly higher for securely attached students, with emotional engagement showing the most substantial effect.

According to Cohen's (1988) guidelines, these effect sizes represent moderate effects (partial $\eta^2 = .155$), indicating that attachment style explains a meaningful proportion of variance in each engagement domain.

Summary of Hypothesis Testing

All three hypotheses were supported. Attachment style significantly predicted:

- Behavioral engagement (H_{01} rejected)

- Emotional engagement (H_{02} rejected)
- Cognitive engagement (H_{03} rejected)

Together, these findings confirm that secure attachment is associated with higher academic engagement across all domains in nontraditional graduate students. These results provide empirical support for all three research questions, confirming that attachment style significantly predicts behavioral (RQ1), emotional (RQ2), and cognitive (RQ3) engagement among nontraditional graduate students.

4. Discussion

This study examined whether adult attachment styles predict academic engagement across behavioral, emotional, and cognitive domains among nontraditional graduate students. The findings demonstrated that attachment style significantly influenced all three aspects of engagement, with securely attached individuals reporting notably higher levels of behavioral participation, emotional investment, and cognitive effort than their peers who were insecurely attached. These results align with the theoretical foundation of Attachment Theory (Bowlby, 1969, 1980), which posits that secure internal working models facilitate emotional regulation, proactive coping, and relational competence, factors that are likely to enhance academic persistence.

The most substantial effect was observed for emotional engagement, indicating that secure attachment may be especially influential in shaping students' affective connection to their educational experiences. This is consistent with prior research emphasizing the importance of emotional safety and connectedness as motivators for adult learners (Fearon et al., 2011; Franklin & Harrington, 2019; Kümmel & Kimmerle, 2020). Students who are securely attached also reported greater behavioral and cognitive engagement, suggesting that their underlying trust and self-efficacy facilitate active participation and strategic learning. In contrast, individuals with anxious or avoidant attachment styles exhibited lower engagement, which may reflect internalized stress, reluctance to seek support, or discomfort in academic relationships, patterns well-documented in the broader attachment literature (Eckstein-Madry et al., 2021; Gore & Rogers, 2010).

Notably, although this study combined anxious and avoidant styles into a general "insecure" category for statistical analysis, these subtypes may influence engagement through distinct psychological pathways. Anxiously attached students might display heightened emotional reactivity and overdependence on external validation, whereas avoidantly attached individuals may disengage to maintain emotional distance. Future research should explicitly differentiate these patterns to determine whether targeted interventions are needed for each group.

These findings extend Attachment Theory beyond its traditional interpersonal and clinical applications by demonstrating its relevance to educational contexts, particularly for nontraditional students managing multiple life roles. Because institutional structures often prioritize traditional learners, these psychological differences may further compound barriers to engagement. This highlights the potential value of attachment-informed practices in higher education. For example, training academic advisors and faculty mentors to recognize signs of insecure attachment, such as excessive reassurance-seeking or withdrawal, and respond with relational consistency and validation may foster a stronger sense of psychological safety. Structured mentoring programs that include regular, attuned check-ins could help build trust and mitigate disengagement, particularly among students who might otherwise hesitate to seek help.

Despite these contributions, several limitations warrant consideration. The racial and ethnic homogeneity of the sample (over 90% White) restricts the cultural generalizability of the findings. Cultural norms influence attachment processes and help-seeking behaviors; future studies should prioritize diverse samples to ensure the broader applicability of their findings. Additionally, reliance on self-report instruments may introduce social desirability or recall bias, particularly for constructs such as attachment. Future studies might also incorporate observational or interview-based assessments of attachment and engagement to triangulate self-reported data and strengthen construct validity.The binary classification of attachment into secure and insecure groups, while analytically pragmatic, may have obscured nuanced effects. Finally, the cross-sectional design precludes conclusions about causality or how attachment and engagement might evolve.

Future research should address these gaps by employing longitudinal designs to explore how attachment style influences engagement trajectories, incorporating more racially and culturally diverse samples, and examining the effectiveness of attachment-based academic interventions. It may also be valuable to include objective indicators of academic success, such as GPA or retention rates, to complement self-reported engagement.

In summary, this study provides empirical evidence that secure attachment is associated with higher behavioral, emotional, and cognitive engagement among nontraditional graduate students. As adult learners continue to represent a growing segment of higher education, institutions must move beyond one-size-fits-all approaches to student support. By integrating an understanding of attachment dynamics into advising, mentoring, and pedagogical practices, universities can more effectively promote the engagement, persistence, and well-being of this diverse and often underserved student population. Future institutional policies might also incorporate attachment-informed advising frameworks and targeted professional development for faculty to recognize and respond to attachment-related barriers. Such initiatives could enhance not only individual engagement but also broader retention and completion rates among nontraditional student populations.

5. Conclusion

This study provides empirical evidence that adult attachment style significantly predicts academic engagement in nontraditional graduate students. Individuals with secure attachment reported higher behavioral, emotional, and cognitive engagement, suggesting that attachment security appears to function as a protective factor against disengagement and attrition. As nontraditional learners continue to represent a growing share of the graduate student population, understanding the role of psychological variables, such as attachment, is critical for designing inclusive, developmentally responsive educational environments. Future research should explore longitudinal dynamics, demographic moderators, and the effectiveness of attachment-based academic interventions.

References

Altman, D. G., & Royston, P. (2006). The cost of dichotomizing continuous variables. *BMJ, 332*(7549), 1080. https://doi.org/10.1136/bmj.332.7549.1080

Baradaran, M., & Ranjbar Noushari, F. (2021). The role of cognitive flexibility and attachment style as predictors of student social cognition. *Social Cognition, 10*(1), 135–148. https://doi.org/10.30473/sc.2021.54097.2571

Bowlby, J. (1969). *Attachment and loss: Vol. 1*. Attachment. Basic Books.

Bowlby, J. (1980). *Attachment and loss: Vol. 3*. Loss: Sadness and depression. Basic Books.

Bumbacco, C., & Scharfe, E. (2023). Why attachment matters: First-year post-secondary students' experience of burnout, disengagement, and drop-out. *Journal of College Student Retention: Research, Theory & Practice, 24*(4), 988–1001. https://doi.org/10.1177/15210251231007143

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Courtner, A. (2019). Impact of student engagement on academic performance and quality of relationships of traditional and nontraditional students. *International Journal of Education, 6*(2), 24. http://dx.doi.org/10.5296/ije.v6i2.5316

Dereli, E., & Karakuş, Ö. (2011). An examination of attachment styles and social skills of university students. *Electronic Journal of Research in Educational Psychology, 9*(24), 731–744. https://doi.org/10.25115/ejrep.v9i24.1464

Eckstein-Madry, T., Piskernik, B., & Ahnert, L. (2021). Attachment and stress regulation in socioeconomically disadvantaged children: Can public childcare compensate? *Infant Mental Health Journal, 42*(6), 839–850. https://doi.org/10.1002/imhj.21878

Fagan, J. (2020). Broadening the scope of father–child attachment research to include the family context. *Attachment & Human Development, 22*(1), 139–142. https://doi.org/10.1080/14616734.2019.1589071

Fearon, R. P., & Roisman, G. I. (2017). Attachment theory: Progress and future directions. *Current Opinion in Psychology, 15*, 131–136. https://doi.org/10.1016/j.copsyc.2017.03.002

Fearon, R. P., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., Lapsley, A.-M., & Roisman, G. I. (2011). The significance of insecure and disorganized attachment for children's internalizing symptoms: A meta-analytic study. *Child Development, 82*(2), 757–779. https://doi.org/10.1111/j.1467-8624.2011.01711.x

Feeney, J. A., Noller, P., & Hanrahan, M. (1994). *Attachment Style Questionnaire (ASQ)* [Database record]. APA PsycTests. https://doi.org/10.1037/t29439-000

Franklin, H., & Harrington, I. (2019). A review into effective classroom management and strategies for student engagement: Teacher and student roles in today's classrooms. *Journal of Education and Training Studies, 7*(12), Article 4491. https://doi.org/10.11114/jets.v7i12.4491

Gore, J. S., & Rogers, M. J. (2010). Why do I study? The moderating effect of attachment style on academic motivation. *The Journal of Social Psychology, 150*(5), 560–578. https://doi.org/10.1080/00224540903365448

Goulet, C. L., Wells, C. K., Szymanski, L. A., & Thieman, T. J. (2021). Gender-specific social support and resilience in nontraditional female college students. *Journal of American College Health, 71*(3), 1–13. https://doi.org/10.1080/07448481.2021.1908300

Griffin, E. K. (2020). Psychosocial techniques used in the classroom to captivate nontraditional community college students. *Community College Journal of Research and Practice, 44*(5), 329–346. https://doi.org/10.1080/10668926.2019.1590252

Gurantz, O. (2022). Impacts of state aid for nontraditional students on educational and labor market outcomes. *Journal of Human Resources, 57*(1), 1–32. https://doi.org/10.3368/jhr.57.1.0618-9570R2

Harbour, K. E., Evanovich, L. L., Sweigart, C. A., & Hughes, L. E. (2015). A brief review of effective teaching practices that maximize student engagement. *Preventing School Failure: Alternative Education for Children and Youth, 59*(1), 5–13. https://doi.org/10.1080/1045988X.2014.919136

Iwanaga, K., Blake, J., Yaghmaian, R., Umucu, E., Chan, F., Brooks, J. M., Rahimi, M., & Tansey, T. N. (2020). *Attachment Style Questionnaire—Short-Form (ASQ)* [Database record]. APA PsycTests. https://doi.org/10.1037/t75708-000

Jimenez-Liso, M. R., Bellocchi, A., Martinez-Chico, M., & Lopez-Gay, R. (2022). A model-based inquiry sequence as a heuristic to evaluate students' emotional, behavioural, and cognitive engagement. *Research in Science Education, 52*(4), 1313–1334. https://doi.org/10.1007/s11165-021-10010-0

Kahu, E. R., & Nelson, K. (2018). Student engagement in the educational interface: Understanding the mechanisms of student success. *Higher Education Research & Development, 37*(1), 58–71. https://doi.org/10.1080/07294360.2017.1344197

Kümmel, E., & Kimmerle, J. (2020). The effects of a university's self-presentation and applicants' regulatory focus on emotional, behavioral, and cognitive student engagement. *Sustainability, 12*(23), Article 10045. https://doi.org/10.3390/su122310045

Leggins, S. (2021). The "new" nontraditional students. *Journal of College Admission, 251*, 34–39.

Maroco, J., Maroco, A. L., Campos, J. A. D. B., & Fredricks, J. A. (2016). University students' engagement: Development of the University Student Engagement Inventory (USEI). *Psicologia: Reflexão e Crítica, 29*, Article 21. https://doi.org/10.1186/s41155-016-0042-8

Matthews, K. E., Andrews, V., & Adams, P. (2011). Social learning spaces and student engagement. *Higher Education Research & Development, 30*(2), 105–120. https://doi.org/10.1080/07294360.2010.512629

Razali, N. M., & Wah, Y. B. (2011). Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors, and Anderson-Darling tests. *Journal of Statistical Modeling and Analytics, 2*(1), 21-33.

Remenick, L. (2019). Services and support for nontraditional students in higher education: A historical literature review. *Journal of Adult and Continuing Education, 25*(1), 113-130. https://doi.org/10.1177/1477971419842880

Sánchez-Gelabert, A. (2020). Non-traditional students, university trajectories, and higher education institutions: A comparative analysis of face-to-face and online universities. *Studia Paedagogica, 25*(4), 51–72. https://doi.org/10.5817/SP2020-4-3

Sung, Y., Nam, T. H., & Hwang, M. H. (2020). Attachment style, stressful events, and Internet gaming addiction in Korean university students. *Personality and Individual Differences, 154*, Article 109724. https://doi.org/10.1016/j.paid.2019.109724

Suri, S., Garg, S., & Tholia, G. (2019). Attachment style, perceived social support, and loneliness among college students. *International Journal of Innovative Studies in Sociology and Humanities, 4*(5), 135–142.

Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics* (7th ed.). Pearson.

Thompson, R. A., Simpson, J. A., & Berlin, L. J. (2022). Taking perspective on attachment theory and research: Nine fundamental questions. *Attachment & Human Development, 24*(5), 543–560. https://doi.org/10.1080/14616734.2022.2030132

Tumuheki, P. B., Zeelen, J., & Openjuru, G. L. (2024). Towards a transformative lifelong learning agenda for non-traditional students at university. *Journal of Adult & Continuing Education, 30*(1), 22–38. https://doi.org/10.1177/14779714231196044

Xerri, M. J., Radford, K., & Shacklock, K. (2018). Student engagement in academic activities: A social support perspective. *Higher Education, 75*, 589–605. https://doi.org/10.1007/s10734-017-0162-9