
Proprietà Psicometriche del *Positive and Negative Affect in Studies: PANASS Scales*

Annamaria Di Fabio¹ e Andrea Svicher²

Sommario

Positive and Negative Affect Schedule (PANAS) scales è uno strumento ben consolidato, ampiamente impiegato per misurare gli stati affettivi sia in ambito di ricerca sia in contesti applicati. Questo studio ha esaminato le proprietà psicometriche di *Positive and Negative Affect in Studies Schedule* (PANASS) scales, a partire dalle PANAS scales con adattamento al contesto dello studio. Cento settantatré studenti universitari hanno completato il PANASS, insieme alla *Flourishing Scale* (FS) e alla *Satisfaction with Life Scale* (SWLS). Sono stati calcolati l'Analisi Fattoriale Confermativa (CFA), gli alfa di Cronbach e le correlazioni di Pearson. La CFA ha sostenuto un modello a due fattori, rappresentante *Positive Affect in Studies Schedule* (PASS) scale e *Negative Affect in Studies Schedule* (NASS) scale, con indici di adattamento accettabili (CFI = .936; TLI = .924; RMSEA = .062; SRMR = .051). I valori di consistenza interna sono risultati soddisfacenti sia per la PASS ($\alpha = .86$) sia per la NASS ($\alpha = .84$). In termini di validità concorrente, la PASS è risultata positivamente correlata sia con la FS ($r = .31, p < .01$) sia con la SWLS ($r = .28, p < .01$), mentre la NASS ha mostrato relazioni negative con la FS ($r = -.26, p < .01$) e con la SWLS ($r = -.24, p < .01$, rispettivamente). I risultati indicano che il PANASS è uno strumento affidabile per cogliere gli affetti positivi e negativi nello studio tra gli studenti universitari.

Parole chiave

PANAS, PANASS, *Positive Affect in Studies*, *Negative Affect in Studies*, PASS, NASS, Studenti universitari.

¹ Responsabile del Laboratorio Internazionale di Ricerca e Intervento «Psicologia del Lavoro e delle Organizzazioni per l'orientamento professionale, il career counseling, il career development, i talenti e le organizzazioni in salute» e del Laboratorio Internazionale di Ricerca e Intervento «Psicologia Positiva Cross-Culturale, Prevenzione e Sostenibilità», Dipartimento di Formazione, Lingue, Intercultura, Letterature e Psicologia (Sezione di Psicologia), Università degli Studi di Firenze, Firenze, Italia.

² Membro del Laboratorio Internazionale di Ricerca e Intervento «Psicologia del Lavoro e delle Organizzazioni per l'orientamento professionale, il career counseling, il career development, i talenti e le organizzazioni in salute» e del Laboratorio Internazionale di Ricerca e Intervento «Psicologia Positiva Cross-Culturale, Prevenzione e Sostenibilità», Dipartimento di Formazione, Lingue, Intercultura, Letterature e Psicologia (Sezione di Psicologia), Università degli Studi di Firenze, Firenze, Italia.

Psychometric Properties of the *Positive and Negative Affect in Studies*: The PANASS Scales

Annamaria Di Fabio¹ and Andrea Svicher²

Abstract

The *Positive and Negative Affect Schedule* (PANAS) scales represent a well-established tool extensively employed to measure affective states in both research and applied settings. This study examined the psychometric properties of the *Positive and Negative Affect in Studies Schedule* (PANASS) scales, adapted from the PANAS to the study context. One hundred and seventy-three university students completed the PANASS, along with the *Flourishing Scale* (FS) and the *Satisfaction with Life Scale* (SWLS). Confirmatory factor analysis (CFA), Cronbach's alphas, and Pearson's correlations were computed. The CFA supported a two-factor model representing the *Positive Affect in Studies Schedule* (PASS) scale and the *Negative Affect in Studies Schedule* (NASS) scale, with acceptable fit indices (CFI = .936; TLI = .924; RMSEA = .062 SRMR = .051). Internal consistency values were satisfactory for both PASS ($\alpha = .86$) and NASS ($\alpha = .84$). In terms of concurrent validity, PASS was positively related with both FS ($r = .31, p < .01$) and SWLS ($r = .28, p < .01$), whereas NASS demonstrated negative relationships with FS ($r = -.26, p < .01$) and SWLS ($r = -.24, p < .01$, respectively). Findings indicate that the PANASS is a reliable instrument for capturing positive and negative effects in studies among university students.

Keywords

PANAS, PANASS, Positive Affect in Studies, Negative Affect in Studies, PASS, NASS, University students.

¹ Director of the International Research and Intervention Laboratory «Work and Organizational Psychology for Vocational Guidance, Career Counseling, Career Development, Talents, and Healthy Organizations» and the International Research and Intervention Laboratory «Cross-Cultural Positive Psychology, Prevention, and Sustainability», Department of Education, Languages, Intercultures, Literatures, and Psychology (Psychology Section), University of Florence, Florence, Italy.

² Member of the International Research and Intervention Laboratory «Work and Organizational Psychology for Vocational Guidance, Career Counseling, Career Development, Talents, and Healthy Organizations» and the International Research and Intervention Laboratory «Cross-Cultural Positive Psychology, Prevention, and Sustainability», Department of Education, Languages, Intercultures, Literatures, and Psychology (Psychology Section), University of Florence, Florence, Italy.

Introduction

Positive and negative affects reflect two dimensions of the human emotional experience, conceptualized as distinct yet often reciprocally influential constructs (Watson et al., 1988; Watson & Tellegen, 1985). The *Positive and Negative Affect Schedule* (PANAS) has served as a foundational measure for these emotional states across an array of targets (Crawford & Henry, 2004; Serafini et al., 2016). It is a self-report instrument for assessing emotional states, acknowledged for its high consistency, trustworthiness, and validity (Medvedev et al., 2021).

Originally developed by Watson et al. (1988), this scale includes 20 items (10 positive valence and 10 negative valence emotion descriptors) evaluated on a 5-point Likert scale. Decades of research have corroborated its capacity to capture the theorized two-dimensional structure, differentiating emotions by their valence — positive or negative (Crawford & Henry, 2004; Díaz-García et al., 2020; Dufey & Fernandez, 2012; López-Gómez et al., 2015). *Positive Affect* (PA) reflects states of energy, focus, and engagement, with less positive affect linked to tiredness and a sense of dejection, while *Negative Affect* (NA) encompasses distress-driven emotions like anger or fear, with low NA indicating calmness (Watson et al., 1988).

Even though PA and NA are separate, they are inversely related, aligning with the circumplex model of affect (Russell, 1980; Watson & Tellegen, 1985), which frames emotions along axes of pleasantness and activation (Tellegen et al., 1999). Confirmatory analyses consistently validate this bifactorial structure (Serafini et al., 2016), supported by strong psychometric properties: test-retest reliability (ICCs: PA = .80, NA = .76) and high reliability ($\alpha = .90$ for PA, $\alpha = .91$ for NA) (Serafini et al., 2016).

The PANAS has been adapted globally, demonstrating applicability across diverse populations, including clinical groups and cross-cultural samples (De Carvalho et al., 2013; Von Humboldt et al., 2017). Recent scholarship has built upon the PANAS framework by tailoring it to specific contexts, such as occupational settings (Di Fabio & Gori, 2022) or academic environments (Di Fabio & Svicher, 2024; Medvedev et al., 2021), while preserving its essential psychometric properties (Dufey & Fernandez, 2012; Díaz-García et al., 2020).

In higher education, students often face multifaceted emotional demands, spanning enthusiasm for learning tasks to anxiety over performance (e.g., Berry & Hansen, 1996). Understanding these affective states is central to supporting their well-being and engagement (Rodrigues et al., 2024; von Humboldt et al., 2017). Whereas the original PANAS has demonstrated robust psychometric properties across languages (Robles & Páez, 2003; López-Gómez et al., 2015), validated adaptations have to be explored to confirm factor structure and reliability in each novel context (Pandey & Srivastava, 2008). Therefore, the aim of

the present study is to examine the psychometric properties of the *Positive and Negative Affect in Studies Schedule* (PANASS), adapted from the PANAS (Watson et al., 1988) to the study context.

Method

Participants and Procedure

The study involved 173 university students (mean age = 19.98 years, $SD = 2.50$) enrolled in Central Italy. The gender distribution comprised 53.74% female and 46.26% male participants. In accordance with national privacy regulation (Legislative Decree 196/2003) and the European Union's data protection regulation (EU 2016/679), all individuals provided informed consent before taking part in the study. All instruments were administered in English, and all participants had a B2 certification in English. Assessments were presented in a counterbalanced sequence to minimize potential order effects.

Instruments

The *Positive and Negative Affect in Studies Schedule* (PANASS) (by Di Fabio and Svicher) is adapted from the PANAS (Watson et al., 1988) to the study context. Participants rate 20 items — half regarding the *Positive Affect in Studies Schedule* (PASS) scale and half regarding the *Negative Affect in Studies Schedule* (NASS) scale — on a 5-point Likert scale from 1 (*Not at all*) to 5 (*Extremely*). Adjectives such as *Enthusiastic about my studies* regard the PASS scale, while items like *Distressed about my studies* reflect the NASS scale (Appendix 1 and Appendix 2). Composite PASS and NASS scores are generated by summing up the PASS and NASS scale items.

The *Flourishing Scale* (FS; Diener et al., 2010) evaluates various aspects of eudaimonic well-being, including perceived meaning, engagement, and self-esteem, through eight statements answered on a 7-point scale (1 = *Strongly disagree*, 7 = *Strongly agree*). Higher totals suggest more pronounced flourishing. Cronbach's alpha is .87 for the original version and .89 in the present study. Examples of items are: «My social relationships are supportive and rewarding»; «I lead a purposeful and meaningful life».

The *Satisfaction with Life Scale* (SWLS; Diener et al., 1985) comprises five items, which are scored on a 7-point Likert continuum from *Strongly disagree* to *Strongly agree*. Elevated sum scores reflect a greater sense of overall life satisfaction. Cronbach's alpha is .87 for the original version and .88 in the present study. Examples of items are: «I am satisfied with my life»; «The conditions of my life are excellent».

Data Analysis

Data were processed using RStudio (version 2024.04.2). A confirmatory factor analysis (CFA) via the *lavaan* package (version 0.6-15) tested a hypothesized two-factor solution for PANASS, anchored in the conceptual distinctions proposed by Watson et al. (1988) (i.e., the *Positive Affect in Studies Schedule* [PASS] scale and the *Negative Affect in Studies Schedule* [NASS] scale). Model adequacy was judged based on the comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). CFI and TLI of .90 or higher, RMSEA up to .08, and SRMR up to .08 were considered acceptable (Hu & Bentler, 1999). Cronbach’s alpha was calculated via the *psych* package, version 2.3.6. Pearson’s correlations were then calculated to assess concurrent validity, hypothesizing that PASS would correlate positively with both FS and SWLS, whereas NASS would correlate negatively with those constructs.

Results

The CFA supported a two-factor model for the PANASS, distinguishing the PASS scale and the NASS scale. Fit indices suggested an acceptable model ($\chi^2(df) = 265.43(152)$, $p < .001$; CFI = .936; TLI = .924; RMSEA = .062 [90% CI: .043-.075]; SRMR = .051). All standardized loadings were significant at $p < .001$, consistent with the hypothesized structure (Table 1). The correlation between the PASS and NASS was $r = -.19$ ($p < .01$).

Cronbach’s alpha was .86 for PASS and .84 for NASS, exceeding the .70 criterion.

Table 2 displays correlations among the PASS, the NASS, the *Flourishing Scale* (FS), and the *Satisfaction with Life Scale* (SWLS). The PASS correlated positively with both flourishing ($r = .31$, $p < .01$) and life satisfaction ($r = .28$, $p < .01$). The NASS correlated negatively with flourishing ($r = -.26$, $p < .01$) and life satisfaction ($r = -.24$, $p < .01$).

Table 1

Confirmatory Factor Analysis of the *Positive and Negative Affect in Studies Schedule* (PANASS) Scales: Standardized Factor Loadings ($N = 173$)

Item	Factor	Loading	SE	p-value
Item 1	PASS	.62	.09	< .001
Item 2	PASS	.71	.08	< .001
Item 3	PASS	.77	.07	< .001

(Continua)

(Continua)

Item 4	PASS	.68	.08	< .001
Item 5	PASS	.73	.08	< .001
Item 6	NASS	.52	.10	< .001
Item 7	NASS	.78	.07	< .001
Item 8	NASS	.59	.09	< .001
Item 9	NASS	.63	.09	< .001
Item 10	NASS	.72	.08	< .001

Note. PASS = Positive Affect in Studies Schedule; NASS = Negative Affect in Studies Schedule.

Table 2

Correlations Among the *Positive and Negative Affect in Studies Schedule* (PANASS) Scales, *Flourishing Scale* (FS), and *Satisfaction with Life Scale* (SWLS) ($N = 173$)

	FS	SWLS
PASS scale	.31**	.28**
NASS scale	-.26**	-.24**

Note. PASS scale = Positive Affect in Studies Schedule (PASS) scale; NASS scale = Negative Affect in Studies Schedule (NASS) scale; FS = Flourishing Scale; SWLS = Satisfaction with Life Scale. ** $p < .01$.

Discussion

The present study examined the psychometric properties of the *Positive and Negative Affect in Studies Schedule* (PANASS), a PANAS adaptation to the study context. The results supported a two-factor structure (PASS scale and NASS scale), good internal consistency, and correlations with flourishing and life satisfaction measures. These findings add to the literature on adapted PANAS-based tools (Crawford & Henry, 2004; Serafini et al., 2016) and suggest that the PANASS can offer valuable insights into the emotions and well-being of university students. The PASS exhibited a positive correlation with flourishing and satisfaction with life, whereas the NASS demonstrated negative correlations with flourishing and satisfaction with life. These patterns corroborate prior research highlighting links between positive affect and well-being, along with negative affect and diminished well-being (Díaz-García et al., 2020; Rodrigues et al., 2024). Such outcomes align with broader theories of affect, emphasizing the protective role of positive emotion and the potentially critical role of negative affect (Berry & Hansen, 1996; Watson & Tellegen, 1985).

Though the results are promising, caution is warranted because the participants were drawn from a single region of Italy, potentially constraining the generalizability. Future inquiries might employ longitudinal or cross-cultural methods to determine whether the PASS and the NASS exhibit comparable psychometric properties over time or in other academic and educational systems.

In brief, the English PANASS has adequate psychometric properties, suggesting its applicability in higher education for both research and applied contexts.

References

- Berry, D. S., & Hansen, J. S. (1996). Positive affect, negative affect, and social interaction. *Journal of Personality and Social Psychology*, 71(4), 796-809. <https://doi.org/10.1037/0022-3514.71.4.796>
- Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties, and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, 43(3), 245-265. <https://doi.org/10.1348/0144665031752934>
- De Carvalho, H. W. D., Andreoli, S. B., Lara, D. R., Patrick, C. J., Quintana, M. I., Bressan, R. A., de Melo, M. F., Mari, J. de J., & Jorge, M. R. (2013). Structural validity and reliability of the positive and negative affect schedule (PANAS): Evidence from a large Brazilian community sample. *Revista Brasileira de Psiquiatria*, 35(2), 169-172. <https://doi.org/10.1590/1516-4446-2012-0957>
- Díaz-García, A., González-Robles, A., Mor, S., Mira, A., Quero, S., García-Palacios, A., Baños, R. M., & Botella, C. (2020). Positive and Negative Affect Schedule (PANAS): Psychometric properties of the online Spanish version in a clinical sample with emotional disorders. *BMC Psychiatry*, 20(1), Article 56. <https://doi.org/10.1186/s12888-020-2472-1>
- Diener, E., Emmons, R. A., Larsen, R. J., & Grifflin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13
- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research*, 97(2), 143-156. <https://doi.org/10.1007/s11205-009-9493-y>
- Di Fabio, A., & Gori, A. (2022). Positive and Negative Affect Schedule (PANAS) at work: A validation study in an Italian sample. *Counseling*, 15(1), 107-115. <https://doi.org/10.14605/CS1512207>
- Di Fabio, A., & Svicher, A. (2024). Positive and Negative Affect in Studies Scale (PANASS): Proprietà psicometriche in studenti universitari. *Counseling*, 17(3), 90-100. <https://doi.org/10.14605/CS1732408>
- Dufey, M., & Fernandez, A. M. (2012). Validez y confiabilidad del Positive Affect and Negative Affect Schedule (PANAS) en estudiantes universitarios chilenos [Validity and reliability of the Positive Affect and Negative Affect Schedule (PANAS) in Chilean college students]. *Revista Iberoamericana de Diagnóstico y Evaluación Psicológica*, 34(1), 157-173.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55. <https://doi.org/10.1080/1070519909540118>
- López-Gómez, I., Hervás, G., & Vázquez, C. (2015). Adaptación de la «Escala de afecto positivo y negativo» (PANAS) en una muestra general española [Adaptation of the «Positive and Negative Affect Scale» (PANAS) in a Span-

- ish general sample]. *Behavioral Psychology/Psicología Conductual*, 23(3), 529-548.
- Medvedev, O. N., Roemer, A., Krägeloh, C. U., Sandham, M. H., & Siegert, R. J. (2021). Enhancing the precision of the Positive and Negative Affect Schedule (PANAS) using Rasch analysis. *Current Psychology*, 42, 1554-1563. <https://doi.org/10.1007/s12144-021-01556-3>
- Pandey, R., & Srivastava, N. (2008). Psychometric evaluation of a Hindi version of positive-negative affect schedule. *Industrial Psychiatry Journal*, 17(1), 49-54.
- Robles, R., & Páez, F. (2003). Estudio sobre la traducción al español y las propiedades psicométricas de las Escalas de Afecto Positivo y Negativo (PANAS) [Study on the translation into Spanish and the psychometric properties of the Positive and Negative Affect Scales (PANAS)]. *Salud Mental*, 26(1), 69-75.
- Rodrigues, J., Rose, R., & Hewig, J. (2024). The relation of Big Five personality traits on academic performance, well-being, and home study satisfaction in Corona times. *European Journal of Investigation in Health, Psychology and Education*, 14(2), 368-384. <https://doi.org/10.3390/ejihpe14020025>
- Russell, J. A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology*, 39(6), 1161-1178. <https://doi.org/10.1037/h0077714>
- Serafini, K., Malin-Mayor, B., Nich, C., Hunkele, K., & Carroll, K. M. (2016). Psychometric properties of the Positive and Negative Affect Schedule (PANAS) in a heterogeneous sample of substance users. *The American Journal of Drug and Alcohol Abuse*, 42(2), 203-212. <https://doi.org/10.3109/00952990.2015.1133632>
- Tellegen, A., Watson, D., & Clark, L. A. (1999). On the dimensional and hierarchical structure of affect. *Psychological Science*, 10(4), 297-303. <https://doi.org/10.1111/1467-9280.00157>
- Von Humboldt, S., Monteiro, A., & Leal, I. (2017). Validation of the PANAS: A measure of positive and negative affect for use with cross-national older adults. *Review of European Studies*, 9, 10-19. <https://doi.org/10.5539/res.v9n2p10>
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*, 98(2), 219-235. <https://doi.org/10.1037/0033-2909.98.2.219>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070. <https://doi.org/10.1037/0022-3514.54.6.1063>
- Willroth, E. C., Young, G., Tamir, M., & Mauss, I. B. (2023). Judging emotions as good or bad: Individual differences and associations with psychological health. *Emotion*, 23(7), 1876-1890. <https://doi.org/10.1037/em00001220>

APPENDIX 1

Items of the *Positive and Negative Affect in Studies Schedule (PANASS) Scales*

PASS scale	NASS scale
Interested in my studies	Distressed about my studies
Excited about my studies	Upset about my studies
Strong in my studies	Guilty about my studies
Enthusiastic about my studies	Scared about my studies
Proud of my studies	Hostile towards my studies
Alert in my studies	Irritable with my studies
Inspired by my studies	Ashamed of my studies
Determined in my studies	Nervous about my studies
Attentive in my studies	Jittery about my studies
Active in my studies	Afraid of my studies

Note. PASS scale = *Positive Affect in Studies Schedule (PASS) scale*; NASS scale = *Negative Affect in Studies Schedule (NASS) scale*.

APPENDIX 2

Items of the *Positive and Negative Affect in Studies Schedule (PANASS) Scales for administration*

1. Interested in my studies
2. Distressed about my studies
3. Excited about my studies
4. Upset about my studies
5. Strong in my studies
6. Guilty about my studies
7. Scared about my studies
8. Hostile towards my studies
9. Enthusiastic about my studies
10. Proud of my studies

11. Irritable with my studies
12. Alert in my studies
13. Ashamed of my studies
14. Inspired by my studies
15. Nervous about my studies
16. Determined in my studies
17. Attentive in my studies
18. Jittery about my studies
19. Active in my studies
20. Afraid of my studies