

The Role of Engagement in Influencing High School Students' Future Time Perspectives: A Gender Moderation

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Abstract

This research explores the interaction between academic engagement, gender differences, and future time perspective (FTP) among high school students. The aim is to shed light on how this factor contributes to students' orientation towards their future. This research used a survey design with a sample of 109 students to examine the prediction of academic engagement to FTP and the moderating role of gender. The findings showed a significant positive prediction of engagement to FTP, which was more pronounced in male students, highlighting the importance of gender as a moderating factor. This research emphasizes the multidimensional nature of engagement—emotional, behavioral, and cognitive—and its essential role in shaping FTP. The impact of the learning environment and teacher-student dynamics on engagement and FTP, which is nuanced by gender differences, is also explored. Based on these insights, the result recommends future research directions, including longitudinal studies, to further understand engagement and FTP developmental trajectories, explore additional moderating factors, and intervene in education supporting gender equity.

Abstrak

Penelitian ini mengeksplorasi interaksi antara keterlibatan akademis, perbedaan gender, dan future time perspective (FTP) di kalangan siswa sekolah menengah. Tujuannya adalah untuk menjelaskan bagaimana faktor ini berkontribusi terhadap orientasi siswa terhadap masa depan mereka. Dengan menggunakan desain survei korelasional dan sampel 109 siswa, penelitian ini menyelidiki prediksi keterlibatan akademis terhadap FTP, serta peran moderasi gender. Temuan penelitian menunjukkan prediksi positif yang signifikan dari keterlibatan terhadap FTP, yang lebih terlihat pada siswa lakilaki, sehingga menyoroti pentingnya gender sebagai faktor moderasi. Penelitian ini menekankan sifat keterlibatan yang multidimensi-emosional, perilaku, dan kognitif—dan peran pentingnya dalam membentuk FTP. Dampak lingkungan belajar dan dinamika guru-siswa terhadap keterlibatan dan FTP, yang bernuansa perbedaan gender, juga dieksplorasi. Berdasarkan wawasan ini, hasilnya merekomendasikan arah penelitian di masa depan, termasuk studi longitudinal, untuk lebih memahami keterlibatan dan arah perkembangan FTP, mengeksplorasi faktor moderasi tambahan, dan mengintervensi pendidikan yang mendukung kesetaraan gender.



INTRODUCTION

Future time perspective (FTP) has proven to be positively boosting various aspects, including psychological well-being (Hytman et al., 2023), decision-making and level of development (Laureiro-Martinez et al., 2017), self-efficacy and avoiding risky sexual behavior (Abousselam et al., 2016), students' readiness for change (Bagrationi & Thurner, 2020), well-being, motivation, and behavior

(Kooij et al., 2018). A deep understanding of the factors influencing FTP must be explored, particularly among high school students, recognizing the importance of positive outcomes. Besides increasing academic performance at the high school level, study engagement in high school positively impacts students' FTP (Liu et al., 2023). In other words, student engagement has emerged as a significant predictor of how individuals perceive and plan for their future (Husman & Hilpert, 2017; Ridho & Siswanti, 2020).

Gender differences further complicate this relationship, as societal, cultural, and biological factors contribute to varying engagement strategies between males and females. This research empirically examines the interaction between engagement and gender on FTP among high school students to address the problem. However, the role of engagement, along with potential gender differences in shaping FTP levels, has not been thoroughly investigated. This gap points to a critical research problem: understanding how engagement and gender influence FTP among high school students.

Engagement-Future Time Perspective Dynamic by Gender

Student engagement is a complex, multidimensional construct pivotal to understanding academic achievement and future aspirations. According to Ridho (2024) and Ben-Eliyahu et al. (2018), engagement is categorized into three interconnected dimensions: behavioral, emotional, and cognitive. Behavioral engagement refers to the participation of students in academic and extracurricular activities, playing a crucial role in positive academic outcomes and reducing dropout rates. Emotional engagement encompasses students' emotional reactions in the educational setting, including feelings of belonging, interest, and enjoyment, which influence their connection to the school and motivation for learning. Conversely, cognitive engagement pertains to the investment and effort students put into learning, characterized by adopting self-regulation strategies and a willingness to engage in complex problem-solving tasks.

The multidimensional nature of student engagement, encompassing social, behavioral, and cognitive components, emerges as a fundamental driver in shaping students' FTP. Engagement, as detailed by Ben-Eliyahu et al. (2018), Bowden et al. (2021), Ridho (2024), and Zhang & McNamara (2018), posits that an integrated approach to engagement—marked by active participation, emotional connection, and cognitive investment—lays the groundwork for students to develop a forward-looking outlook on their futures. Such an orientation toward the future, grounded in the perception and valuation of long-term goals, is instrumental in motivating students toward sustained academic commitment (Barnacle & Dall'Alba, 2017).

The evidence supporting the pivotal role of engagement in fostering FTP is compelling, with systematic reviews and meta-analyses elucidating the complex interplay between FTP and various individual and contextual factors across life stages (Henry et al., 2017; Kooij et al., 2018). Although rooted in occupational contexts, these findings resonate deeply within educational frameworks, suggesting the universal applicability of the engagement-FTP linkage. Further, academic-focused research underscored the positive association between a future-oriented perspective and academic achievement mediated through deep learning approaches and intended intellectual engagement (Barnett et al., 2020; Janeiro et al., 2017). This body of work collectively supports the centrality of engagement in cultivating a proactive stance toward future aspirations among students.

Moreover, the engagement-FTP dynamic is intricately influenced by gender differences. Studies found how male and female students engage with their learning environments differently (Lietaert et al., 2015) and consequently develop their FTP. Meanwhile, Leraas et al. (2018) highlight the importance of considering psychological gender and fostering supportive environments to enhance student engagement, underscoring the complex dynamics of gender differences in educational participation.

These disparities underscore the imperative for adopting gender-sensitive educational strategies that equitably nurture engagement and future orientation across student demographics.

Further, adding complexity to the discussion, Bergdahl and Nouri (2020) investigate the engagement patterns within technology-enhanced learning (TEL) environments, considering variables such as gaming frequency, gender, and language background. Their findings reveal distinct engagement and disengagement patterns among student groups, highlighting the intricate relationship between gender and engagement in digital contexts. This suggests that effective digital learning strategies must account for gender differences to foster an inclusive and engaging educational experience for all students.

Kang et al. (2023) advance the conversation by examining the differential impacts of teacher-student relationships on school engagement, focusing on gender as a moderating factor. Their research indicates that conflict in teacher-student relationships affects males and females differently, with emotional engagement being more significantly impacted for females. In contrast, closeness and conflict influence males' cognitive engagement. This underscores the complex interplay between gender, the quality of teacher-student relationships, and student engagement, reinforcing the need for gender-sensitive approaches in education.

Integrating these insights, the implications of this refined understanding—that student engagement is a precursor to FTP—are profound for educators, policymakers, and researchers alike. It underscores the necessity of fostering rich, multifaceted engagement among students as a strategic lever for enhancing their future orientations. This perspective highlights the potential for improved academic motivation and achievement. It emphasizes the critical role of educational environments and pedagogical strategies in supporting students' long-term academic and career aspirations. The interconnection of engagement, FTP, and gender complexities within this discourse accentuates the intricate landscape of educational research and practice, advocating for a holistic and nuanced approach to cultivating positive future perspectives among students.

In conclusion, the role of engagement in shaping high school students' FTP is a dynamic and complex process significantly influenced by gender. Understanding the multifaceted nature of student engagement and its impact on FTP offers valuable insights for educators, researchers, and policy-makers. By recognizing the critical role of engagement in fostering positive future orientations and addressing the nuanced differences across genders, stakeholders can develop more effective strategies to support students in navigating their academic journeys and achieving their long-term goals. Such efforts enhance individual student outcomes and contribute to the broader objective of preparing a generation of motivated, engaged, and equipped learners to face future challenges.

Research Purposes

Through these considerations, the primary objective of this research is to explore the role of engagement and gender in predicting students' FTP among Indonesian high school students. Specifically, this research aims to: (1) investigate the role of engagement in predicting FTP among high school students; (2) examine gender differences in engagement and their impact on students' FTP levels; and (3) explore the interaction effects between engagement and gender on FTP, providing insights into how these factors may uniquely influence male and female students.

METHODS

In the intricate exploration of the role of engagement and gender in shaping the FTP among high school students, this research adhered to the highest ethical standards, receiving clearance from the Faculty of Psychology's Ethics Committee. This ethical foundation ensured that all participants were fully informed about the research's aims, their rights, and the confidentiality of their responses,

thereby securing their informed consent and upholding the principles of voluntary participation and data protection.

This investigation employed a survey design chosen for its ability to elucidate the natural relationships between students' academic engagement, gender, and FTP without the need for experimental manipulation. This approach allowed us to observe how these variables coalesce in the real-world settings of high school environments, aiming to uncover the predictive relationships that might exist among them.

The cohort for this research consisted of 109 high school students, divided into 40 males and 69 females. This diverse group was selected through convenience sampling, which involves selecting readily available and willing participants (Bornstein et al., 2013). The instruments at the heart of this data collection were two scales: (1) a 17-item Future Time Perspective Scale adapted from Steinberg et al. (2009), boasting a Cronbach's alpha of .85, to measure students' orientations toward their futures, which consists of three dimensions (planning, time, and anticipation); and (2) a 10-item Academic Engagement Scale from Ridho (2024) measuring three dimensions (emotional, behavioral, and cognitive), with a reliability of .79, designed to assess the depth of students' engagement in their academic pursuits. The item fit depicted in Figure A1 and Figure A2 in the Appendix shows all items in the FTP and engagement scale, which provided each scale validity evidence of score based on the internal structure (*Standards for Educational and Psychological Testing*, 2014).

Data were collected through an online survey distributed via social media platforms. Respondents were asked to complete a questionnaire designed to measure FTP and study engagement. The survey was structured to ensure anonymity and confidentiality, encouraging honest responses.

Analyzing the gathered data commenced with the meticulous scaling and calibration of responses using one of the item response theory models, specifically the graded response model (Samejima, 1997), which precisely measures the constructs under study. The author then examined mean differences to identify significant disparities in FTP and engagement across genders. This analysis culminated in a moderation analysis aimed to unearth the nuanced role gender plays in moderating the relationship between academic engagement and FTP. This multifaceted approach to data analysis was instrumental in peeling back the layers of how engagement and gender intersect to influence students' perspectives on their future, offering insights grounded in statistical rigor and ethical consideration.

RESULTS

As presented in Table 1, the descriptive statistics analysis focuses on FTP and engagement among high school students, differentiated by gender (males and females). A total sample of 109 students comprised 40 males and 69 females. For FTP, the mean score for males was .32 with a standard deviation (SD) of .98, indicating a moderate level of future orientation with relatively high variability. The minimum and maximum values ranged from -1.8 to 2.47, suggesting a wide score dispersion. Skewness and kurtosis values were -.05 and -.46, respectively, denoting a relatively symmetric distribution with a slight platykurtic trend. In contrast, females demonstrated a slightly negative mean FTP score of -.18 (SD = .84), with scores spanning from -2.34 to 2.49, reflecting a broader but slightly more negatively skewed distribution (skewness = .25) and a marginally leptokurtic curve (kurtosis = .53).

Table 1.
Descriptive Statistic

Variables	Group	N	M	SD	Min.	Max.	Skewness	Kurtosis
FTP	Males	40	.32	.98	-1.80	2.47	05	46
	Females	69	18	.84	-2.34	2.49	.25	.53
	Total	109	0	.92	-2.34	2.49	.22	.02
Engagement	Males	40	.25	.94	-1.91	2.49	.49	.14
	Females	69	14	.83	-2.26	2.13	28	.52
	Total	109	0	.89	-2.26	2.49	.15	.75

Regarding engagement, males exhibited an average score of .25 (SD = .94), with values ranging from -1.91 to 2.49. This group showed a more positively skewed distribution (skewness = .49) and a near-normal kurtosis (.14), indicating a tendency towards higher engagement levels. On the other hand, females reported a mean engagement score of -.14 (SD = .83), ranging from -2.26 to 2.13. This suggests a slight negative skewness (-.28) and a moderately leptokurtic distribution (kurtosis = .52), indicating a generally lower engagement level among female students. When considering the total sample, the overall mean scores for FTP and engagement were calculated as 0, with standard deviations of .92 and .89, respectively. The distributions for the total sample showed a slight skewness and kurtosis towards positive values, indicating a generally balanced distribution across the entire cohort. These descriptive statistics provide a foundational understanding of the sample's future orientation and engagement levels, laying the groundwork for further inferential analysis.

The regression analysis of FTP on engagement for the combined sample of high school students (without differentiating by gender) yielded significant results, indicating a strong positive relationship between engagement and FTP. The regression equation, F(1, 107) = 30.66, p < .001, demonstrates a robust model fit, suggesting that engagement significantly predicts FTP among students.

The estimated intercept is -.00 with t(107) = -.00, p > .05, indicating that when engagement is at zero, the FTP is expected to be zero, accounting for the scale of measurement used in this analysis. However, this is more of a statistical artifact, as the practical interpretation of engagement scores would only sometimes consider an engagement level of absolute zero.

More critically, the coefficient for engagement is .49 with t(107) = 5.54, p < .001, suggesting that for every one-unit increase in engagement, FTP is expected to increase by .49 units. This indicates a substantial positive effect of engagement on FTP across the student population, highlighting the importance of engagement in fostering a forward-looking perspective among high school students.

This result emphasizes the critical role of student engagement in educational settings. High levels of engagement are associated with more positive future orientations, suggesting that interventions aimed at increasing student engagement could benefit students' perspectives toward their futures. Educators and policymakers should consider strategies to enhance engagement in the classroom and beyond, as doing so may improve academic outcomes and support students in developing a more optimistic and proactive approach to their futures.

The simple slopes analysis conducted to investigate the effect of engagement on FTP, with gender serving as a moderation variable, yields significant results. This research reveals differential impacts of engagement on FTP based on gender, as indicated by the estimated slopes for males and females. For females, the engagement slope on FTP is estimated at .32 with t(107) = 2.71, p < .01, indicating a significant positive relationship between engagement and FTP among female students. This suggests that as engagement increases, so does the FTP among females, albeit at a moderate pace. Meanwhile, the relationship between engagement and FTP is more pronounced for males, with an estimated

slope of .64 where t(107) = 4.69, p < .001. This result signifies a stronger positive association between engagement and FTP in male students than their female counterparts. The more significant slope for males indicates that increases in engagement have a more substantial effect on enhancing their FTP.

These findings underscore the moderating role of gender in the relationship between engagement and FTP among high school students. The differential effects observed highlight the necessity of gender-sensitive approaches when designing interventions to boost student engagement and future orientation. Specifically, the stronger association between engagement and FTP in males suggests that strategies to increase engagement could be particularly effective for improving males' outlook on the future. In contrast, while the relationship is positive for females, the effect is more moderate, indicating that engagement is just one of several factors influencing their FTP. This nuanced understanding can inform educators, counselors, and policymakers in developing tailored programs catering to male and female students' distinct needs and dynamics, fostering engagement and a positive future orientation.

Table 2.
Gender Differences in FTP and Engagement

Variables	t-Cutoff	SE	t-Value	df	p-Value	95% CI	Cohen's d
FTP	1.982	.178	2.823	107	.006	.150 to .856	.561
Engagement	1.982	.173	2.270	107	.025	.050 to .737	.451

The statistical analysis presented in Table 2 examines the differences in FTP and engagement between male and female high school students. The analysis utilizes independent t-tests to evaluate the gender differences for each variable. For FTP, the significant difference between genders is t(107) = 2.823, p < .01, with a 95% confidence interval for the mean difference ranging from .150 to .856. The effect size, measured by Cohen's d, is .561 (see Figure A4 in the Appendix), suggesting a moderate effect of gender on FTP. This finding indicates that the FTP scores significantly differ by gender, with the observed difference having practical significance.

Conversely, in the case of engagement, the significant gender difference t(107) = 2.270, p < .05, with a 95% confidence interval for the mean difference extending from .050 to .737. The effect size for engagement, indicated by Cohen's d, is .451 (see Figure A5 in the Appendix), pointing to a moderate effect of gender. This demonstrates that engagement levels are significantly different between male and female students, with this difference also being of practical relevance.

In conclusion, the preliminary analysis, as summarized in Table 2, reveals significant gender differences in both FTP and engagement among high school students. The moderate effect sizes, as indicated by Cohen's d for FTP (.561) and engagement (.451), suggest that these differences are not only statistically significant but also of practical relevance. Such findings underscore the importance of gender as a variable in the psychological and educational dynamics of future orientation and student engagement.

Given these substantial gender differences in FTP and engagement, it becomes relevant to explore further how these variables interact across genders. Therefore, the next step in this analysis involves regressing FTP on engagement while moderating by gender. This subsequent analysis aims to uncover the extent to which engagement influences FTP and whether this relationship is significantly moderated by gender. Integrating gender as a moderating variable can provide deeper insights into the complex interaction between students' engagement levels and their perspectives on the future. The preliminary findings justify this approach and are essential for developing targeted interventions that address male and female students' unique needs and characteristics. Through such nuanced analysis, educational stakeholders can better understand and facilitate the conditions that support

positive future orientation and engagement in school settings, thereby contributing to students' overall well-being and academic success.

The moderation analysis elucidates a significant interaction effect in examining the relationship between engagement and FTP across genders. While engagement positively predicts FTP for both genders, the magnitude of this relationship is notably more substantial for male students than their female counterparts. This differential impact is quantitatively supported by the slopes of engagement for females ($b_{\text{female}} = .32$) and males ($b_{\text{male}} = .64$), revealing a more noticeable influence of engagement on FTP among males.

Integrating these insights with the overarching regression model, which indicates a substantial positive association between engagement and FTP across the student sample, emphasizes the foundational role of engagement in shaping students' perspectives toward the future. However, the nuanced findings from the moderation analysis suggest that gender significantly modulates this relationship, necessitating a more differentiated approach in educational and intervention strategies to enhance student engagement.

The implication of these findings for educational practice is twofold. Firstly, they reaffirm the centrality of student engagement in promoting a positive orientation toward the future, highlighting the potential benefits of interventions designed to enhance engagement levels. Secondly, the evidence of gender as a moderating variable in the engagement-FTP relationship suggests that such interventions may require customization to effectively address the distinct experiences and needs of male and female students. For male students, strategies that bolster engagement could yield significant improvements in future orientation. Conversely, while enhancing engagement remains essential for female students, a comprehensive approach considering other influencing factors may be necessary to achieve similar outcomes in fostering a positive future perspective.

In conclusion, the present analysis highlights the critical influence of engagement on students' FTP, with gender serving as a fundamental moderating factor. Therefore, educational interventions to improve engagement should incorporate gender-specific considerations to optimally support the development of positive future orientations among all students. This gender-sensitive approach could enable educators and policymakers to more effectively facilitate conditions conducive to fostering optimistic and proactive orientations towards the future across the diverse student population.

DISCUSSION

The present study aimed to: (1) investigate the role of engagement in predicting FTP among high school students; (2) examine gender differences in engagement and their impact on students' FTP levels; and (3) explore the interaction effects between engagement and gender on FTP, providing insights into how these factors may uniquely influence male and female students. The aims were effectively answered, providing significant insights into the role of engagement in predicting FTP among high school students, examining gender differences in engagement, and exploring the interaction effects between engagement and gender on FTP.

Exploring the role of student engagement in influencing FTP and examining gender interaction within educational psychology yields a rich tapestry of insights, both supporting and challenging established theoretical frameworks. This investigation into the complex interplay among academic engagement, gender differences, and FTP among high school students contributes significant insights to educational psychology. This research, grounded in a robust analytical framework, illuminates the critical role of engagement in shaping students' orientation toward their future, underscoring the nuanced ways in which gender influences this prediction. By weaving these findings with the broader

discourse on engagement, FTP, and gender, this research offers a comprehensive narrative that enriches this understanding of these dynamics.

The empirical evidence suggesting a positive prediction of engagement to FTP resounds the propositions Marr (2022) laid out, positing engagement's catalytic role of engagement in fostering an optimistic outlook toward students' future endeavors. This view, however, is nuanced by the work of Kooij et al. (2018), who introduced the complexity of external factors such as family support and socio-economic status, potentially modulating the direct effects observed between engagement and FTP, thus suggesting a more intricate interplay of variables.

Furthermore, the revelation of gender differences in the impact of engagement on FTP underscores the necessity of integrating gender as a critical factor in educational research, resonating with the findings of Liu et al. (2023). They found that males' and females' academic motivations and future aspirations are differentially influenced by their levels of engagement. Nevertheless, this notion is contested by Hwang et al. (2016), who argued that when controlling for variables like self-efficacy and prior academic achievement, the apparent gender differences in the engagement-FTP link may diminish, implying that these factors, rather than gender itself, might be the primary drivers of the observed differences.

The evidence presented emphasizes the importance of a multidimensional approach to student engagement, encompassing social, behavioral, and cognitive aspects. Such an approach is instrumental in fostering a forward-looking outlook among students and motivating sustained academic commitment. These findings echo the sentiments of previous scholars, reinforcing the notion that engagement is a fundamental driver in developing a robust FTP. This relationship, moderated by gender, presents a compelling case for adopting gender-sensitive educational strategies that equitably nurture engagement and future orientation across student demographics.

The call for gender-responsive pedagogical strategies finds further support, Burns et al. (2021) highlighting the success of tailored engagement interventions in differentially enhancing FTP among male and female students. This approach amplifies engagement and consciously addresses and seeks to dismantle gender stereotypes and expectations that could impede the development of a positive future orientation. However, this perspective is critically examined by Patel and Singh (2018), who caution against overly simplistic gendered interventions. They emphasize the importance of acknowledging individual differences and the risk of reinforcing stereotypes through generalized approaches.

Moreover, this exploration into technology-enhanced learning environments and the differential impacts of teacher-student relationships on engagement highlights the intricate landscape of educational research and practice. These insights advocate for a holistic and nuanced approach to cultivating positive future perspectives among students, emphasizing the need for educational environments and pedagogical strategies that support students' long-term academic and career aspirations.

Acknowledging limitations inherent in survey designs paves the way for future research, mainly longitudinal studies, as Hanna et al. (2023) recommended. Such studies promise to unravel the causal pathways linking engagement, FTP, and gender over time, offering a more definitive exploration of these dynamics. Moreover, Burga et al. (2017) proposed that investigations into students' lived experiences provide a complementary perspective to the findings, promising richer insights into the subjective dimensions of engagement and future orientation.

In synthesizing these diverse strands of evidence and theoretical discourse, the discussion advances the understanding of how engagement influences FTP and how gender nuances this relationship. It underscores the importance of adopting a nuanced approach to educational interventions sensitive to the complexities of gender dynamics. While the findings contribute valuable insights to

the field, the ongoing debate invites further exploration into the intricate web of factors that shape students' academic journeys and life aspirations, highlighting the evolving nature of educational psychology research.

To conclude, it is imperative to acknowledge the limitations of this research and the opportunities for future research. The use of convenience sampling and the cross-sectional nature of this research suggest the need for longitudinal research designs that can offer deeper insights into how engagement and gender dynamics evolve. Exploring other moderating variables, such as socioeconomic status or cultural background, could provide a more comprehensive view of the factors shaping students' future orientation.

In closing, this research reaffirms the dynamic and complex process through which engagement shapes high school students' FTP, significantly influenced by gender. Recognizing the multifaceted nature of student engagement and its impact on FTP offers valuable insights for educators, researchers, and policymakers. By acknowledging the critical role of engagement in fostering positive future orientations and addressing nuanced differences across genders, stakeholders can develop more effective strategies to support students in navigating their academic journeys and achieving their long-term goals. Such concerted efforts enhance individual student outcomes and contribute to the broader objective of preparing a generation of motivated, engaged, and equipped learners to face future challenges.

CONCLUSION

The findings of this research reveal that academic engagement significantly predicts FTP, with a stronger impact observed among male students, indicating that gender plays a critical moderating role. These results affirm that the multidimensional nature of engagement—encompassing emotional, behavioral, and cognitive aspects—significantly shapes students' FTP. This research suggests a profound interconnection between engagement and FTP, moderated by gender differences. To build on these insights, the findings advocate for future longitudinal studies to elucidate the evolving relationship between engagement and FTP, explore additional moderating variables, and assess the effectiveness of gender-sensitive strategies in enhancing FTP. Comparative global studies are also recommended to deepen the understanding of these dynamics across diverse educational contexts, paving the way for more informed and effective educational interventions.

REFERENCES

- Abousselam, N., Naudé, L., Lens, W., & Esterhuyse, K. (2016). The Relationship Between Future Time Perspective, Self-Efficacy and Risky Sexual Behaviour in the Black Youth of Central South Africa. *Journal of Mental Health*, 25(2), 176–183. https://doi.org/10.3109/09638237. 2015.1078884
- Bagrationi, K., & Thurner, T. (2020). Using the Future Time Perspective to Analyse Resistance to, and Readiness for, Change. *Employee Relations: The International Journal*, 42(1), 262–279. https://doi.org/10.1108/ER-04-2018-0113
- Barnacle, R., & Dall'Alba, G. (2017). Committed to Learn: Student Engagement and Care in Higher Education. *Higher Education Research & Development*, *36*(7), 1326–1338. https://doi.org/10.1080/07294360.2017.1326879
- Barnett, M. D., Melugin, P. R., & Hernandez, J. (2020). Time Perspective, Intended Academic En gagement, and Academic Performance. *Current Psychology*, *39*(2), 761–767. https://doi.org/10.1007/s12144-017-9771-9

- Ben-Eliyahu, A., Moore, D., Dorph, R., & Schunn, C. D. (2018). Investigating the Multidimension ality of Engagement: Affective, Behavioral, and Cognitive Engagement Across Science Ac tivities and Contexts. *Contemporary Educational Psychology*, *53*, 87–105. https://doi.org/10.1016/j.cedpsych.2018.01.002
- Bergdahl, N., & Nouri, J. (2020). Student Engagement and Disengagement in TEL The Role of Gaming, Gender and Non-native Students. *Research in Learning Technology*, 28, 1–16. https://doi.org/10.25304/rlt.v28.2293
- Bornstein, M. H., Jager, J., & Putnick, D. L. (2013). Sampling in Developmental Science: Situations, Shortcomings, Solutions, and Standards. *Developmental Review*, *33*(4), 357–370. https://doi.org/10.1016/j.dr.2013.08.003
- Bowden, J. L.-H., Tickle, L., & Naumann, K. (2021). The Four Pillars of Tertiary Student Engage ment and Success: A Holistic Measurement Approach. *Studies in Higher Education*, 46(6), 1207–1224. https://doi.org/10.1080/03075079.2019.1672647
- Burga, R., Leblanc, J., & Rezania, D. (2017). Analysing the Effects of Teaching Approach on Engagement, Satisfaction and Future Time Perspective Among Students in a Course on CSR. *The International Journal of Management Education*, *15*(2, Part B), 306–317. https://doi.org/10.1016/j.ijme.2017.02.003
- Burns, E. C., Martin, A. J., & Collie, R. J. (2021). A Future Time Perspective of Secondary School Students' Academic Engagement and Disengagement: A Longitudinal Investigation. *Journal of School Psychology*, 84, 109–123. https://doi.org/10.1016/j.jsp.2020.12.003
- Hanna, F., Andre, L., & Zee, M. (2023). Student Teachers' Future Time Perspective and Teacher Identity: A Longitudinal Study About Students Who Will Become Primary School Teachers. *Teaching and Teacher Education*, *136*, 104382. https://doi.org/10.1016/j.tate.2023.104382
- Henry, H., Zacher, H., & Desmette, D. (2017). Future Time Perspective in the Work Context: A Sys tematic Review of Quantitative Studies. *Frontiers in Psychology*, 8. https://doi.org/10.3389/fpsyg.2017.00413
- Husman, J., & Hilpert, J. C. (2017). Extending Future Time Perspective Theory Through Episodic Future Thinking Research: A Multidisciplinary Approach to Thinking About the Future. In A. Kostić & D. Chadee (Eds.), *Time Perspective: Theory and Practice* (pp. 267–280). London: Palgrave Macmillan UK. https://doi.org/10.1057/978-1-137-60191-9_12
- Hwang, M. H., Choi, H. C., Lee, A., Culver, J. D., & Hutchison, B. (2016). The Relationship Between Self-Efficacy and Academic Achievement: A 5-Year Panel Analysis. *The Asia-Pacific Edu cation Researcher*, 25(1), 89–98. https://doi.org/10.1007/s40299-015-0236-3
- Hytman, L., Hemming, M., Newman, T., & Newton, N. J. (2023). Future Time Perspective and Psychological Well-Being for Older Canadian Women During the COVID-19 Pandemic. *Journal of Adult Development*, 30(4), 393–403. https://doi.org/10.1007/s10804-023-09445-8
- Janeiro, I. N., Duarte, A. M., Araújo, A. M., & Gomes, A. I. (2017). Time Perspective, Approaches to Learning, and Academic Achievement in Secondary Students. *Learning and Individual Differences*, 55, 61–68. https://doi.org/10.1016/j.lindif.2017.03.007

- Kang, D., Stough, L. M., Yoon, M., & Liew, J. (2023). The Association Between Teacher–Student Relationships and School Engagement: An Investigation of Gender Differences. *Educational Psychology*, 43(6), 623–642. https://doi.org/10.1080/01443410.2023.2225816
- Kooij, D. T. A. M., Kanfer, R., Betts, M., & Rudolph, C. W. (2018). Future Time Perspective: A Sys tematic Review and Meta-Analysis. *Journal of Applied Psychology*, 103(8), 867–893. https://doi.org/10.1037/apl0000306
- Laureiro-Martinez, D., Trujillo, C. A., & Unda, J. (2017). Time Perspective and Age: A Review of Age Associated Differences. *Frontiers in Psychology*, 8. https://doi.org/10.3389/fpsyg.2017. 00101
- Leraas, B. C., Kippen, N. R., & Larson, S. J. (2018). Gender and Student Participation. *Journal of the Scholarship of Teaching and Learning*, 18(4), 51–70. https://doi.org/10.14434/josotl.v18i4. 22849
- Lietaert, S., Roorda, D., Laevers, F., Verschueren, K., & De Fraine, B. (2015). The Gender Gap in Student Engagement: The Role of Teachers' Autonomy Support, Structure, and Involvement. British Journal of Educational Psychology, 85(4), 498–518. https://doi.org/10.1111/bjep.12095
- Liu, Y., Gong, X., Shi, L., Shi, Y., Dong, B., & Tian, X. (2023). Future Time Perspective and Study Engagement Among Middle School Students: A Moderated Mediation Model. *PsyCh Jour nal*, *12*(6), 801–808. https://doi.org/10.1002/pchj.694
- Marr, B. (2022). Future Skills: The 20 Skills and Competencies Everyone Needs to Succeed in a Digital World. Hoboken: John Wiley & Sons.
- Patel, R. M., & Singh, U. S. (2018). Prevalence Study of Cognitive Impairment and Its Associated Sociodemographic Variables Using Mini-Mental Status Examination Among Elderly Popula tion Residing in Field Practice Areas of a Medical College. *Indian Journal of Community Medicine: Official Publication of Indian Association of Preventive & Social Medicine*, 43(2), 113–116. https://doi.org/10.4103/ijcm.IJCM 102 17
- Ridho, A. (2024). Multidimensionality of Student Engagement Construct: The Exploratory and Confirmatory Item Response Model. *Testing, Psychometrics, Methodology in Applied Psychology*, 31, 239–261. https://doi.org/10.4473/TPM31.2.7
- Ridho, A., & Siswanti, A. D. (2020). Future Perspective and Work Readiness on Students. *Jurnal Psikologi*, 19(2), 201–210. https://doi.org/10.14710/jp.19.2.201-210
- Samejima, F. (1997). Graded Response Model. In W. J. van der Linden & R. K. Hambleton (Eds.), *Handbook of Modern Item Response Theory* (pp. 85–100). New York: Springer. https://doi.org/10.1007/978-1-4757-2691-6_5
- Standards for Educational and Psychological Testing. (2014). Washington, DC: American Educational Research Association.
- Steinberg, L., Graham, S., O'Brien, L., Woolard, J., Cauffman, E., & Banich, M. (2009). Age Differences in Future Orientation and Delay Discounting. *Child Development*, 80(1), 28–44. https://doi.org/10.1111/j.1467-8624.2008.01244.x

Zhang, Z., & McNamara, O. (2018). Key Indicators of Student Engagement. In Z. Zhang & O. McNamara (Eds.), *Undergraduate Student Engagement: Theory and Practice in China and the UK* (pp. 57–81). Singapore: Springer. https://doi.org/10.1007/978-981-13-1721-7_4

APPENDIX

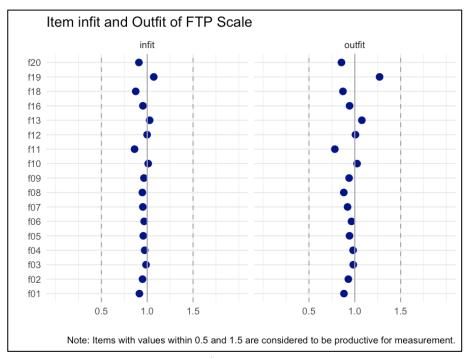


Figure A1. FTP Item Fit

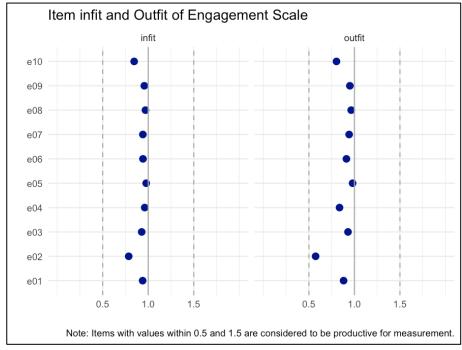


Figure A2. Engagement Item Fit

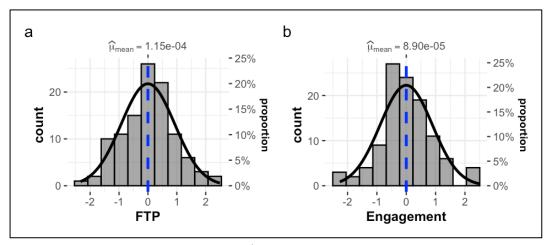


Figure A3. Histogram and Distribution of FTP and Engagement

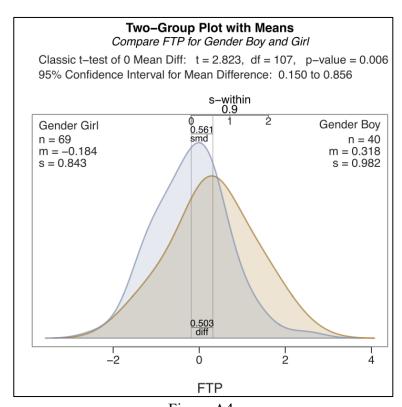


Figure A4. Standardized Mean Difference of FTP Between Male and Female

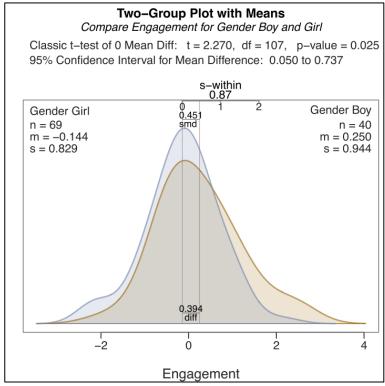


Figure A5.

Standardized Mean Difference of Engagement Between Male and Female

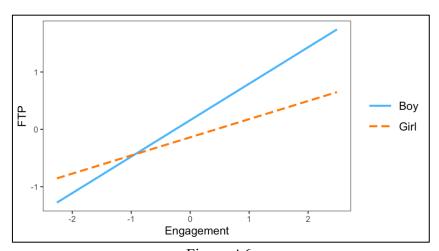


Figure A6.

Differential Prediction of Engagement to FTP Between Male and Female