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## **Cognitive Engagement and Academic Satisfaction: Critical Issues related to the Constructs**

Rahama Rahim & Mariam Adawiah Dzulkifli

*Department of Psychology, AbdulHamid AbuSulayman Kulliyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia*

### **ABSTRACT**

*Research on the psychological construct of cognitive engagement and how it relates to students' academic satisfaction has been noted to have significantly increased recently. Many research findings have supported their association as indicators of academic achievement. The present paper aims to review and analyse research on cognitive engagement and academic satisfaction and to highlight the possible conceptual and methodological issues in this area of research. While numerous studies have suggested the connection between academic engagement and academic satisfaction, the specific link between cognitive engagement and academic satisfaction still needs to be explored. Even studies on academic satisfaction need to be conducted more adequately, while studies on life satisfaction and job satisfaction have drawn more attention. Moreover, scholars describe the dimensions of cognitive engagement in different ways, which may cause vagueness. In addition, more study is also essential by focusing on the relationship between cognitive engagement and academic satisfaction across different academic disciplines. Furthermore, apart from quantitative-based research, a qualitative approach can be followed to understand these constructs better. Ultimately, this paper offers some directions for future researchers to develop insight.*

*Keywords: cognitive engagement, academic satisfaction, students, learning.*

### **INTRODUCTION**

In academics, engagement is linked to the degree of students' devoted time and efforts towards their academic and non-academic activities to achieve desired goals, *i.e.*, tasks related to school and assignments (Kuh, 2003; Kuh, 2009). Recent developments in research focus on including the cognitive component of engagement (Fredericks et al., 2004; Jimerson et al., 2003), which is signified by learners' interest in tasks through applying their thought processes and intelligence (Murray et al., 2004). Though cognitive engagement greatly influences students' learning processes, assisting them in developing creative problem-solving and independent thinking skills (Hudson, 2015) and academic productivity (Khan et al., 2023), it remains out of adequate attention due to its lack of visibility and more internal features. Moreover, it is mostly perceived as a difficult component of the learning process (Barlow et al., 2020). Still, it greatly contributes to learners thinking deeply about the novel information they have received and helps them understand the material by applying various learning strategies (Robb, 2004). Furthermore, student satisfaction has also been identified as a prime parameter of both success and quality of the program among various measures of learning outcome (Alqurashi, 2016; Ke & Kwak, 2013; Wurst et al., 2008), but the findings regarding the academic satisfaction of students have mostly been neglected (Wach et al., 2016). Therefore, this article intends to focus on the necessity of discussing cognitive engagement and its association with academic satisfaction.

In general, cognitive engagement describes to what extent students are psychologically eager to invest their effort and employ multiple processing techniques toward their learning task (Frederick et al., 2004; Rotgans & Schmidt, 2010; D'Mello et al., 2017). Similarly, scholars emphasised that cognitive engagement denotes the degree of students' tactful thinking ability and management capacity over their academic tasks during the learning period (Cleary & Zimmerman, 2012; Li & Lajoie, et al., 2021). Hence, it is considered a vital predictor of effective learning outcomes because it benefits them to recognise their cognitive pattern and apply several effective techniques, incorporating divergent phases of the learning process (Hu & Li, 2017). It is also evident that students who employ the self-regulated learning approach are more likely to be more oriented, engaged with deeper analysis (Wara et al., 2018), and focused on evaluating their desired goals (Winne, 2019). Moreover, cognitively engaged learners are interested and can maintain self-regulatory practices and focus on deep and tough mental encounters (Reeve, 2012; Greene, 2015).

Cognitive engagement as a construct has been identified to consist of multiple types. For instance, Clarke (2002) suggests four cognitive engagement types: self-regulated learning, task focus, resource, and recipience. Firstly, self-regulated learning (SRL). This type refers to higher-order or metacognitive elements controlling students' cognitive processing. Hence, it is considered the top form of cognitive engagement (Evertson & Weinstein, 2011). Further, Zimmerman and Moylan (2009) elaborate that SRL comprises three dynamics and recurrent phases. The first phase is known as forethought, which includes several types of learners' activities, including making plans, setting goals, evaluating self-skills, and having enthusiasm for doing academic tasks. The second phase comprises performance or volitional control, where students engage with their tasks, pay attention, execute strategies, and observe their improvement. The self-reflection phase is the third phase, where students evaluate their tasks and performances. Further, the second type of cognitive engagement is task focus, where the learner emphasises making plans considering specific tasks and monitoring themselves. According to Clarke (2002), the third type of cognitive engagement is resource management, which involves students seeking help from different areas or sources.

According to Clarke (2002), cognitive engagement might also involve recipience, which denotes little mental involvement and passive activities of the students in their study. Furthermore, regarding assessing cognitive engagement, Greene et al. (2015) classify cognitive learning strategies as deep and shallow approaches. While deep strategies are identified as meaningful or developed techniques, shallow strategies are signified by the memorisation process (Xie, et al., 2019). Deep strategies need additional psychological endeavour to gain knowledge from the learning material, *i.e.*, the ability to summarise, discriminate, and connect the information. Reversely, shallow strategies are also related to meaningful techniques, which are useful in multiple phases of learning (Hu & Li, 2017). Eventually, both deep/meaningful and shallow dimensions have strong predictability for the success of courses (Greene & Miller, 1996), while the application of deep learning is found to be significant in high achievers compared to low achievers (Ahmed & Ahmad, 2017).

Academic satisfaction refers to students' evaluations regarding their academic results and experiences (Insunza et al., 2015). Focusing on some common activities between study and work (involvement with the main activity, planning and working for achieving goals, etc.) (Starr et al., 1972; Apenburg, 1980), many scholars considered student academic satisfaction as similar to work satisfaction (Apenburg, 1980; Westermann et al.; 1996, Tarpman et al., 2007). Moreover, She et al. (2021) and Adler et al. (2021) asserted that academic satisfaction is a dynamic process based on learners' feelings and perceptions of their learning experience. For instance, student satisfaction depends on comparing their

expectations with their attainments (Medrano et al., 2014), their observation of the nature of the educational institution, and their learning condition (Ramos et al., 2015).

Likewise, Green et al. (2015) described some determinates responsible for student satisfaction, such as the teaching style, the organisation, and the type of students. The teaching style indicates their way of communication and management of the classroom and empathy toward students; the institutional factors are related to course nature, getting support from classmates, and university services; and the type of students is indicated by their personality, feelings towards learning, and eagerness to take part in learning activities (Adler et al., 2021). Furthermore, it is also evident that if the students get the opportunity to participate and interact with their buddies and faculty and gain elaborate feedback from them, they feel satisfied with their education (Shea et al., 2003).

As a subjective feeling, students' satisfaction has a wide range of influences on various issues, for instance, the ability to cope with the learning environment (Righi et al., 2006), steadiness in academic results (Merino-Soto et al., 2016), social communication (Medrano & Pérez, 2010), mental wellbeing (Abarca et al., 2013), and stress tolerance (Schiefele & Jacob-Ebbinghaus, 2006). Moreover, students' academic satisfaction helps them respond adaptively and greatly influences minimising the negative feelings from unwanted experiences (Iasiello et al., 2019). Although students' academic satisfaction is proven to be a vital determinant of academic institutions (Huebner & Gilman, 2006; Lodi et al., 2017) and academic success (Spörer & Brunstein, 2005), it remains less focused (Trapmann et al., 2007) by the researchers.

## **THEORETICAL FRAMEWORK**

In learning processes, students' engagement requires both physical dedication (behavioural engagement) and psychological dedication (emotional and cognitive engagement) to gain novel knowledge and improve academic skills (She et al., 2021; Kuh, 2003; Janosz, 2012). According to the Expectancy-Value Theory (Eccles et al., 1983), students' beliefs, aptitude, expectations, and values (how the task meets the student's different needs) related to their specific task can determine their achievement-related choice, behaviour, and persistence (Eccles, 1983). This theory can describe the factors associated with learners' behavioural engagement and other influential factors relating to their beliefs and values (Eccles, 1983; Fan, 2011).

However, students' engagement plays a key role in achieving academic success, being satisfied with their learning, and enhancing their performance (She et al., 2021; Gao et al., 2020; Rahmatpour et al., 2021). Scholars reported that deeply engaged students have the intrinsic tendency to learn and understand their respective subjects instead of avoiding the fear of failure (Erhel & Jamet, 2013; Hanus & Fox, 2015). Moreover, students who engage deeply with learning are better equipped for lifelong learning (Hill & Fitzgerald, 2020).

Cognitive engagement can also be related to the theory of self-determination theory (SDT) (Ryan & Deci, 2017), which describes how personal agency and self-regulation are being developed. The SDT describes that basic psychological needs, autonomy, competence, and relatedness must be reinforced to maintain our well-being and psychological association (Vansteenkiste et al., 2018). Moreover, the requirement for fulfilling autonomy demonstrates a sense of personal choice and mental freedom, which are regulated by a feeling of personal ownership (de Charms, 1968). Moreover, while the need for competence refers to confidence and the ability to achieve targets (White, 1959), relatedness indicates the desire to feel attached and gain support from a close person (Baumeister & Leary, 1995).

By satisfying these essential needs, a person will tend to perform genuinely, be able to identify self-intrinsic potentials and engage more with their surroundings (Ryan & Deci, 2016).

Based on the theory of student involvement, students' learning and personal development greatly depend on their involvement with their academic institution (Astin, 1984). Besides enhancing and developing learning, students feel attachment, affiliation, and connection with their mentors, friends, and academic organisation by engaging in the study (Bensimon, 2009). Additionally, satisfaction is recognised as a significant construct to measure the quality of an institution (Kuh, et al., 2007). Since cognitive engagement particularly helps to develop students' relatedness to the study materials, it has a strong role in transforming students' approach to their education (Wara et al., 2018).

## **EXISTING STUDIES ON COGNITIVE ENGAGEMENT AND ACADEMIC SATISFACTION**

Extensive research has been conducted on students' academic engagement and satisfaction, but research between cognitive engagement and academic satisfaction is limited. Evidently, students' different forms of engagement, such as behavioural, cognitive, and emotional engagement, are significantly connected to academic achievement and satisfaction. Additionally, cognitive engagement, along with the presence rate of teachers, cognitive presence, behavioural engagement, and emotional engagement, jointly contribute to 88% of the variance in satisfaction (Kucuk & Richardson, 2019). When students take more courses on an online platform, they become more cognitively engaged and responsible for their learning outcomes (Richardson & Newby, 2006). Hence, regarding online learning, students' self-regulated learning (SRL) strategies demonstrate a steady and positive influence on satisfaction (Lim et al., 2020). Eventually, students' satisfaction related to their course depends on how much they can obtain and apply the skills of SRL to become more successful (Barnard et al., 2010; Cho & Shen, 2013).

Generally, students' academic engagement positively contributes to multiple academic outcomes and the student satisfaction level (National Survey of Student Engagement, "NSSE", 2016). Several studies have documented that the construct of student engagement greatly contributes to academic attainment and students' level of satisfaction (Shah & Barkas, 2018; Kucuk & Richardson, 2019). For instance, a positive and predictive relationship between engagement and satisfaction was found (Astin, 1993; NSSE, 2005). Likewise, academic engagement is connected to academic enthusiasm (Bravo, 2013) and learning satisfaction (Fisher et al., 2018; Hensley et al., 2021; Salanova et al., 2005). Inconclusive findings have been documented regarding online platforms. For instance, some researchers propose that engagement comprises diverse factors that have a predictive role in determining learners' satisfaction with online education (Kucuk & Richardson, 2019; Swan, 2001) and also have a vital contribution to satisfaction with the online learning background (Bitzer & Janson, 2014; Shin & Chan, 2004; Swan, 2001; Gray & DiLoreto, 2016). Similarly, Gray and DiLoreto (2016) further explored the positive and significant affiliation between student online engagement and satisfaction.

Reversely, while describing the importance of the student's behavioural, cognitive, and emotional connection to gain satisfaction from learning, other scholars reported an adverse association between satisfaction with online learning and academic engagement (Sharif et al., 2023). In some cases, cognitive and emotional engagement revealed a mediating role in the link between motivation and satisfaction in the context of EMI courses (Thi et al., 2023). Martin et al. (2018) concluded that student engagement boosts student motivation, reduces the sense of isolation, and increases student satisfaction. Moreover, it is suggested by many findings that, besides playing a predictive role in student satisfaction,

academic engagement also acts as a dominating factor in university students' learning effectiveness (Holt et al., 2015).

Regardless of academic satisfaction, it plays a mediational role in the association between students' engagement and motivation (Subandi & Hamid, 2021), while a positive link has also been noticed between engagement and satisfaction (Froment & Gutiérrez, 2022). Although extensive research has been conducted on employee job satisfaction with work engagement and students' life satisfaction with academic engagement, very limited investigation has been found on academic satisfaction and cognitive engagement. For instance, a study on 779 Southeastern US adolescents revealed a significant reciprocal link between cognitive engagement and life satisfaction (Anderson et al., 2004).

### **CRITICAL CONSIDERATIONS AND DIRECTIONS FOR FURTHER RESEARCH**

The present paper attempted to detect the conceptual and methodological issues related to the student's cognitive engagement and academic satisfaction. Several limitations have been identified in existing studies involving these constructs. Firstly, it is apparent that academic engagement is dominant in the learning process. Still, the focus on the cognitive dimension needs to be more extensive compared to behavioural and affective components. It is also evident that students investing in their studies are more likely to perform well and avoid dropout rates and absenteeism. Cognitively engaged students achieve better results than less motivated students (Veríssimo et al., 2021). Therefore, further research is needed to study cognitive engagement because this component is deeply related to students' actual involvement with their study but is less emphasised.

Secondly, although, most of the research supports the association between academic satisfaction and academic engagement, there needs to be more investigation into the cognitive dimension of engagement, particularly its connection with academic satisfaction. A very limited number of empirical studies have been conducted on cognitive engagement and academic satisfaction. Moreover, there needs to be more evidence in the previous studies. For instance, inconclusive research findings related to online learning satisfaction and cognitive engagement have been found by different scholars; some stated it has a positive relationship (Kucuk & Richardson, 2019; Swan, 2001), and some reported a negative relationship (Sharif et al., 2023). Concerning this matter, more investigation is essential to resolve the contradiction.

Thirdly, though studies have yet to be conducted on these constructs, particularly in online learning, it would be worthwhile to investigate them in physical learning, especially in the post-COVID era when students return to pursuing physical and face-to-face learning environments. In this case, numerous issues, including attention, involvement, academic stress, etc., might become a matter of concern for further investigations.

Fourthly, regarding academic satisfaction, most of the studies have focused on life satisfaction and cognitive engagement among students. Still, rigorous research on students' academic satisfaction with cognitive engagement is lacking. Investigating these issues is important because life satisfaction is a global assessment of life conceptually different from academic satisfaction. Moreover, in the literature, some researchers consider student academic satisfaction to be like job satisfaction, but conceptually, it needs to be clarified by further researchers to avoid confusion.

Fifthly, the dimensions of cognitive engagement are described by different scholars in different ways, which may cause ambiguity. Hence, it must describe common and unique forms sophisticatedly

for a better understanding of cognitive engagement. Moreover, most studies were conducted on the self-regulating learning strategies (SRL) component of cognitive engagement, but other dimensions should have been addressed more. That is, deep and shallow learning also need to be considered for further study to disseminate a vast understanding of the role of cognitive engagement.

Sixthly, further study is required to emphasise the relationship between cognitive engagement and academic satisfaction across different disciplines. Exploring the connection between cognitive engagement and academic satisfaction among various student groups will provide an extensive scenario of these constructs.

Lastly, as another methodological gap, most of the research related to cognitive engagement and academic satisfaction is observed in the quantitative nature of the research. Therefore, it is crucial to be concerned with qualitative-based research to explore more detailed and in-depth information about the proposed constructs. Considering the above-mentioned issues, further researchers can develop their insight and adhere to mitigate the existing gaps in the literature.

## CONCLUSION

Regardless of rising interest and diverse findings, numerous interconnected conceptual and methodological issues must be addressed in further research focusing on cognitive engagement and academic satisfaction. Though educators, educational psychologists, and policymakers. Authorities are generally concerned about the main goal of traditional educational systems, and it is also required to emphasise the process of engaging the students cognitively and enhancing their satisfaction with study. As a result, these psychological skills will help them remain active and updated in their lives. The comprehensive empirical findings will also reveal the value of designing a standard curriculum to encourage students to become autonomous and connected in learning and the teachers or trainers to make their classes effective and interesting. Eventually, to improve students' achievement abilities, understanding the conceptual and influential impact of these constructs is crucial.

## CONFLICTS OF INTEREST

This paper has no conflict of interest.

## REFERENCES

- Abarca, A., Alpizar, F., Sibaja, G., & Rojas, C. (2013). *Qualitative research techniques*. San José, Costa Rica: UCR.
- Ahmed, A., & Ahmad, N. (2017). Comparative Analysis of Rote Learning on High and Low Achievers in Graduate and Undergraduate Programs. *Journal of Education and Educational Development*, 4(1),111-129.
- Adler, R., Roberts, H., Crombie, N., & Dixon, K. (2021). Determinants of accounting students' undergraduate learning satisfaction. *Accounting & Finance*, 61(4), 5231-5254.
- Alqurashi, E. (2016). Self-Efficacy in Online Learning Environments: A Literature Review. *Contemporary Issues in Education Research*. 9, 45-52.

- Anderson, A. R., Christenson, S. L., Sinclair, M. F., & Lehr, C. A. (2004). Check and connect: The importance of relationships for promoting engagement with school. *Journal of School Psychology, 42*, 95–113.
- Apenburg, E. (1980). *Untersuchungen zur Studienzufriedenheit in der heutigen Massenuniversität [Studies on Students' Satisfaction at Modern Mass Universities]*. Frankfurt am Main: Peter D. Lang.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*(4), 297–308.
- Astin, A. W. (1993). *What matters in college? Four critical years revisited*. San Francisco: Jossey-Bass Inc.
- Barlow, A., Brown, S. A., Lutz, B., Pitterson, N. P., Hunsu, N., & Adesope, O. (2010). Development of the student course cognitive engagement instrument (SCCEI) for college engineering course. *International Journal of STEM Education, 7*(1). DOI:10.1186/s40594-020-00220-9.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>.
- Bensimon, E. M. (2009). "Foreword" in *student engagement in higher education* (pp. xxi-xxvi) (Eds.) S. R. Harper and S. J. Quaye, Routledge, New York & Oxon
- Bitzer, P., & Janson, A. (2014). *Towards a holistic understanding of technology mediated learning services - A state-of-the-art analysis*. In: European Conference on Information Systems (ECIS), Tel Aviv, Israel.
- Bravo, L. (2013). Predictores de engagement académico en estudiantes de odontología. *Revista de Educación en Ciencias de la Salud, 10*(2), 86–95
- Clarke, N. (2002). Job/Work Environment Factors Influencing Training Transfer within a Human Service Agency: Some Indicative Support for Baldwin and Ford's Transfer Climate Construct. *International Journal of Training and Development, 6*, 146-162.
- Cleary, T. J., & Zimmerman, B. J. (2012). A cyclical self-regulatory account of student engagement: Theoretical foundations and applications. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement*, (pp. 237–257). Springer Science + Business Media. [https://doi.org/10.1007/978-1-4614-2018-7\\_11](https://doi.org/10.1007/978-1-4614-2018-7_11)
- de Charms, R. (1968). *Personal Causation*. New York: Academic Press.
- D'Mello, S., Dieterle, E., & Duckworth, A. (2017). Advanced, Analytic, Automated (AAA) Measurement of Engagement During Learning. *Educational Psychologist, 52*(2), 104–123. <https://doi.org/10.1080/00461520.2017.1281747>
- Eccles, J. (1983). Expectancies, values and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motives: Psychological and sociological approaches* (pp. 75-146). San Francisco, CA: Free man.
- Erhel, S., & Jamet, E. (2013). Digital Game-Based Learning: Impact of Instructions and Feedback on Motivation and Learning Effectiveness. *Computers and Education, 67*, 156-167.

- Evertson, C. M., & Weinstein, C. S. (2006). *Handbook of classroom management: Research, practice, and contemporary issues*. Mahwah, NJ: Lawrence Erlbaum.
- Fan, W., (2011). Social influences, school motivation and gender differences: an application of the expectancy-value theory. *Educational Psychology, 31*(2), 157–175
- Frederick, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research, 74*(1), 59-109. DOI: 10.3102/00346543074001059.
- Fisher, D., Ragsdale, J., & Fisher, E. (2018). The Importance of Definitional and Temporal Issues in the Study of Resilience. *Applied Psychology, 68*(4).
- Froment, F., & Gutiérrez, M. (2022). The prediction of teacher credibility on student motivation: Academic engagement and satisfaction as mediating variables. *Revista de Psicodidáctica, 27*(2), 149-157.
- Gao, B. W., Jiang, J., & Tang, Y. (2020). The effect of blended learning platform and engagement on students' satisfaction – the case from the tourism management teaching. *Journal of Hospitality, Leisure, Sport & Tourism Education, 27*,1–11.
- Gray, J.A., & Diloreto, M. (2016) The Effects of Student Engagement, Student Satisfaction, and Perceived Learning in Online Learning Environments. *International Journal of Educational Leadership Preparation, 11*.
- Greene, B. A., & Miller, R. B. (1996). Influences on achievement: Goals, perceived ability, and cognitive engagement. *Contemporary Educational Psychology, 21*, 181–192.
- Green, H.J., Hood, M., & Neumann, D.L. (2015). Predictors of Student Satisfaction with University Psychology Courses: A Review. *Psychology Learning & Teaching, 14*(2), 131–146.
- Hanus, M., & Fox, J. (2015). Assessing the effects of gamification in the classroom: A longitudinal study on intrinsic motivation, social comparison, satisfaction, effort, and academic performance. *Computers & Education, 80*,152-161. DOI:10.1016/j.compedu.2014.08.019.
- Hensley, K., Bosscher, V., Triantafyllidou, S., & Lytle, D. (2021). Lead service line identification: A review of strategies and approaches. *AWWA Water Science, 3*(3), e1226.
- Hill K., & Fitzgerald R. (2020). Student perspectives of the impact of COVID-19 on learning. *All Ireland Journal of Higher Education, 12*(2).
- Holt, P. G., Salzman, D., Bellucci, S. S., E., & Lombardi, L. (2015). Engaging diverse student audiences in contemporary blended learning environments in Australian higher business education: Implications for Design and Practice. *Australasian Journal of Information Systems, 19*.
- Hudson, N. W., & Fraley, R. C. (2015). Volitional personality trait change: Can people choose to change their personality traits? *Journal of Personality and Social Psychology, 109*(3), 490–507.
- Hu, M., & Li, H. (2017). Student Engagement in Online Learning: A Review. *International Symposium on Educational Technology (ISET)* (pp. 39-43). Hong Kong, China.

- Huebner, E., & Gilman, R. (2006). Students Who Like and Dislike School. *Applied Research in Quality of Life*, 1(2), 139-150. DOI: 10.1007/s11482-006-9001-3.
- Iasiello, M., Agteren, J. V., Keyes, C. L.M., & Muir- Cochrane, E. C. (2019). Positive mental health as a predictor of recovery from mental illness. *Journal of Affective Disorders*, 251, 227-230.
- Insunza, B., Ortiz, L., Pérez, C., Torres, G., McColl, P., Meyer, A., Matus, O., Bastías, N., & Bustamante, C. (2015). Estructura factorial y confiabilidad del cuestionario de satisfacción académica en estudiantes de medicina chilenos. *Revista Iberoamericana de Diagnóstico y Evaluación-e Avaliac, ão Psicológica*, 40(2),73 –82.
- Janosz, M. (2012). Outcomes of Engagement and Engagement as an Outcome: Some Consensus, Divergences, and Unanswered Questions. In S. L. Christenson, A. L. Reschly, and C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 695-703). New York: Springer.
- Jimerson, S. R., Campos, E., & Greif, J. L. (2003). Toward an understanding of definitions and measures of school engagement and related terms. *California School Psychologist*, 8, 7 – 27.
- Ke, F., & Kwak, D. (2013). Constructs of Student-Centered Online Learning on Learning Satisfaction of a Diverse Online Student Body: A Structural Equation Modeling Approach. *Journal of Educational Computing Research*, 48.
- Khan, H., Gul, R., & Zeb, M. (2023). The Effect of Students' Cognitive and Emotional Engagement on Students' Academic Success and Academic Productivity. *Journal of Social Sciences Review*, 3(1), 322-334.
- Kuh, G. D. (2003). What we are learning about student engagement from NSSE: Benchmarks for effective educational practices. *Changes*, 35(2), 24–32.
- Kuh, G.D. (2007). What Student Engagement Data Tell Us About College Readiness. Peer Review, Association of American Colleges and Universities, *Winter*, 4-8.
- Kuh, G. D. (2009). The national survey of student engagement: Conceptual and empirical foundations. *New Directions for Institutional Research*, 141, 5-20.
- Kucuk, S., & Richardson, J. (2019). A structural equation model of predictors of online learners' engagement and satisfaction. *Online Learning*, 23(2).
- Li, S., & Lajoie, S.P. (2021). Cognitive engagement in self-regulated learning: an integrative model. *European Journal of Psychology of Education*, 37, 833-852.
- Lim, C. L., Ab Jalil, H., Maa'rof, A. M., & Saad, W. Z. (2020). Self-regulated learning as a mediator in the relationship between peer learning and online learning satisfaction: A study of a private university in Malaysia. *Malaysian Journal of Learning and Instruction*, 17, 51-75.
- Martin, F., Wang, C., & Sadaf, A. (2018). Student perception of helpfulness of facilitation strategies that enhance instructor presence, connectedness, engagement and learning in online courses. *The Internet and Higher Education*, 37, 52-65.
- Medrano, L., Liporace, M. F., & Pe' rez, E.. (2014). Computerized assessment system for academic satisfaction (ASAS) for first-year university student. *Electronic Journal of Research in Educational Psychology*. 12(2), 541-562.

- Medrano, M., Gil, A., Martorell, I., Potau, X., & Cabeza, L. F. (2010). Stat of the art on high-temperature thermal energy storage for power generation. Part 2. Case studies. *Renewable and Sustainable Energy Reviews*, 56-72.
- Merino-Soto, C., Dominguez-Lara, S., & Fernández-Arata, M. (2017). Validación inicial de una Escala Breve de Satisfacción con los Estudios en estudiantes universitarios de Lima [Initial validation of a Brief Satisfaction with Studies Scale in university students in Lima]. *Educación Médica* 18, 74–77.
- Murray, S., Mitchell, J., Gale, T., Edwards, J., & Zyngier, D. (2004). Student disengagement from primary schooling: A review of research and practice: A report for the CASS Foundation. Project Report. Centre for Childhood Studies, Faculty of Education, Monash University.
- Rahmatpour, P., Peyrovi, H., & Sharif N., H. (2021). Development and psychometric evaluation of postgraduate nursing student academic satisfaction scale. *Nursing Open*, 8(2),1145-1156.
- Ramos, V. R., Suarez-Arrones, L., Requena, B., Haff, G., Feito, J., & Villarreal, E. S. (2015). Effects of In-Competitive Season Power-Oriented and Heavy Resistance Lower-Body Training on Performance of Elite Female Water Polo Players. *Journal of strength and conditioning research / National Strength & Conditioning Association*, 29,458-465.
- Reeve, J. (2012). A self-determination theory perspective on student engagement. In S. L. Christenson, A. L. Reschly, and C. Wylie (Eds.), *Handbook of research on student engagement*, pp. 149-172. Springer Science + Business Media.
- Richardson, J. C., & Newby, T. (2006). The role of students' cognitive engagement in online learning. *American Journal of Distance Education*, 20(1), 23-37.
- Righi, S., & Mecacci, L. Cognitive failures, metacognitive beliefs and aging. *Personality and Individual Differences*, 40 (7),1453-1459.
- Robb, M. K. (2004). Factors that Influences Cognitive Engagement and Academic Success of Pre-Licensure Baccalaureate Millennial Nursing Students. Indiana University of Pennsylvania.
- Rotgans, J. I., & Schmidt, H. G. (2010). The motivated strategies for learning questionnaire: A measure for students' general motivational beliefs and learning strategies? *The Asia-Pacific Education Researcher*, 19(2), 357-369.
- Ryan, R. M., Deci, E. L., & Vansteenkiste, M. (2016). Autonomy and autonomy disturbances in self-development and psychopathology: Research on motivation, attachment, and clinical process. In D. Cicchetti (Ed.), *Developmental psychopathology: Theory and method* (3rd ed.) (pp. 385–438). John Wiley & Son.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. The Guilford Press.
- Salanova, M., Agut, S., & Peiro, J. (2005). Linking Organizational Resources and Work Engagement to Employee Performance and Customer Loyalty: The Mediation of Service Climate. *The Journal of applied psychology*, 90(6),1217-27.
- Schiefele, U., & Jacob-Ebbinghaus, L. (2006). Lernermerkmale und Lehrqualität als Bedingungen der Studienzufriedenheit [Student Characteristics and Perceived Teaching Quality as Conditions of Study Satisfaction]. *Zeitschrift für Pädagogische Psychologie / German Journal of Educational Psychology*, 20(3), 199-212.

- Shah, R., & Barkas, L. (2018). Analysing the impact of e-learning technology on students' engagement, attendance and performance. *Research in Learning Technology*, 26.
- Sharif, N. H., Marôco, J., She, L., Khoshnavay, F. F., Rahmatpour, P., Ilic, I. S.....,Reardon, J. (2023). Student satisfaction and academic efficacy during online learning with the mediating effect of student engagement: A multicountry study. *PLOS ONE*, 18(10).
- She, L., Ma, L., Jan, A., Nia, H. S., & Rahmatpour, P. (2021). Online Learning Satisfaction During COVID-19 Pandemic Among Chinese University Students: The Serial Mediation Model. *Front Psychology*, 12.
- Shea, P., Fredericksen, E., Pickett, A., & Pelz, W. (2003). A Preliminary Investigation of "Teaching Presence" in the SUNY Learning Network. *Elements of Quality Online Education: Practice and Direction*, 4.
- Shin, N., & Chan, J. K. Y. (2004). Direct and indirect effects of online learning on distance education. *British Journal of Educational Technology*, 35(3), 275–288
- Spörer, N., & Brunstein, J. C. (2005). Strategien der Tiefenverarbeitung und Selbstregulation als Prädiktoren von Studienzufriedenheit und Klausurleistung [The Influence of Deep-Processing Learning and Self Regulation on Academic Satisfaction and Exam Performance]. *Psychologie in Erziehung und Unterricht*, 52(2), 127–137.
- Starr A., Betz E. L., & Menne J. (1972). Differences in college student satisfaction: academic dropouts, nonacademic dropouts, and nondropouts. *Journal of Counseling Psychology*, 19, 318–322.
- Subandi, S., & Hamid, M. (2021). Student satisfaction, loyalty, and motivation as observed from the service quality. *Journal of Management and Islamic Finance*, 1, 136-153.
- Swan, K. (2001). Virtual Interaction: Design Factors Affecting Student Satisfaction and Perceived Learning in Asynchronous Online Courses. *Distance Education*, 22, 306-331.
- Thi, L. Nguyen, & Tuan, N. D. (2023). Student Satisfaction with EMI Courses: The Role of Motivation and Engagement. *Journal of Applied Research in Higher Education*, 15(3), 762-775.
- Trapmann, S., Hell, B., Hirn, J., & Schuler, H. (2007). Meta-Analysis of the Relationship Between the Big Five and Academic Success at University. *Zeitschrift für Psychologie*, 215(2), 132-151.
- Vansteenkiste, M., Aelterman, N., De Muyneck, G., Haerens, L., Patall, E., & Reeve, J. (2018). Fostering Personal Meaning and Self-relevance: A Self-Determination Theory Perspective on Internalization. *The Journal of Experimental Education*, 86(1), 30-49.
- Veríssimo, J., Verhaeghen, P., Goldman, N., Weinstein, M., & Ullman (2021). Publisher Correction: Evidence that ageing yields improvements as well as declines across attention and executive functions. *Nature Human Behaviour*, 5(10),1-1.
- Wara, E., Aloka, P., & Odongo, B. (2018). Relationship between Cognitive Engagement and Academic Achievement among Kenyan Secondary School Students. *Mediterranean Journal of Social Sciences*, 9(2), 61-72.
- Wach, F. S., Karbach, J., Ruffing S., Brünken, R., & Spinath, F. (2016). University Students' Satisfaction with their Academic Studies: Personality and Motivation Matter, *Frontiers in Psychology*, 7.

- Westermann, R., Heise, E., Spies, K., & Trautwein, U. (1996). Identifikation und Erfassung von Komponenten der Studienzufriedenheit [Identifying and assessing components of student satisfaction]. *Psycholgy Erziehung Unterr*, 43,1–2.
- White, R. (1959). Motivation Reconsidered: The Concept of Competence. *Psychological Review*, 66, 279-333.
- Winne, P. H. (2019). Paradigmatic dimensions of instrumentation and analytic methods in research on self-regulated learning. *Computers in Human Behavior*, 96, 285–290.
- Wurst, C., Smarkola, C., & Gaffney, M. (2008). Ubiquitous laptop usage in higher education: Effects on student achievement, student satisfaction, and constructivist measures in honors and traditional classrooms. *Computers & Education*, 51,1766-1783.
- Xie, K., Heddy, B.C., & Greene, B.A. (2019). Affordances of using mobile technology to support experience-sampling method in examining college students' engagement. *Computers & Education*, 128(1), 183-198.
- Zimmerman, B. J., & Moylan, A. R. (2009). Self-regulation: Where metacognition and motivation intersect. In D. J. Hacker, J. Dunlosky, and A. C. Graesser (Eds.), *Handbook of metacognition in education* (pp. 299–315). Routledge/Taylor & Francis Group.