

The Dynamics of Satisfaction and Engagement among Undergraduate Students at the Royal University of Law and Economics (RULE) in Cambodia: A Focus on Student-Directed Learning Experiences

Mardy Un^{1*}, Sarom Mok², Sivutha Onn³, Somuny Som⁴, Mengheang Hor⁵

¹Ph.D. Candidate, Preah Sihaminiraja Buddhist University, Phnom Penh, Cambodia

²Ph.D., Director, Post-Graduate School, Preah Sihaminiraja Buddhist University, Phnom Penh, Cambodia

³Ph.D., Main Advisor, Ministry of Civil Service, Phnom Penh, Cambodia

⁴Ph.D., Co-Advisor, Royal Academy of Cambodia, Phnom Penh, Cambodia

⁵Ph.D., Committee, Preah Sihaminiraja Buddhist University, Phnom Penh, Cambodia

* Corresponding Author:

E-mail: un.mardy.rule@gmail.com

Abstract

This quantitative correlational study sought to ascertain whether and to what degree Royal University of Law and Economics (RULE) student-directed learning experiences among undergraduate students in Cambodia were associated with their satisfaction and engagement. Constructivism and situated learning theory served as the study's guiding principles. The research samples were 400 fourth-year students studying at RULE serving as a convenience sample for the study. The research instrument was a set of questionnaires, which was adopted from relevant theories and developed by researcher reviewing from the literature with its reliability at 0.90. The collected data were analyzed by using the descriptive and inferential statistics via computer software. The research findings revealed that the degree to which student-directed learning among RULE undergraduate students was associated with their level of engagement, importance, and satisfaction. Nonparametric correlation studies revealed statistically insignificant relationships between student-directed learning and student involvement, satisfaction level, and importance. In higher education, implementing student-directed learning offers great potential to meet students' learning needs and enhance learning outcomes. Future research on student-directed learning at higher education institutions should focus on practical outcomes.

Keywords: Dynamics, Undergraduate Students, Satisfaction, Engagement, Student-Directed Learning and Experiences.

I. INTRODUCTION

Students' active participation in the teaching and learning processes is encouraged by constructivism as an instructional strategy (Moeurn, 2025a; Mok et al., 2026a;). Researchers found that faculty members saw students participating more actively when learning activities are offered in a constructivist setting than when learning activities are offered in a traditional classroom setting in an investigation that compared traditional instructor teaching philosophies with constructivist teaching methods (Moeurn, 2025b, 2025c, 2025d; Mok et al., 2026a, 2026b; Sawers et al., 2016). The principles of situated learning theory (SLT) dedicated a significant amount of attention to the study of learning. While Lave and Wenger concentrated their research on analysing Situated Learning as a teaching and learning strategy, Dewey and Vygotsky claimed that students learn best in real-world settings when solving issues (Maher et al., 2018). Maher et al. (2018) claim that because the material is analysed and applied to solve issues, teaching through the use of contextual learning methodologies is more significant than learning by memorisation. It discusses communities since they are the social structure where students engage and exchange information, which leads to problem-solving (Maher et al., 2018; Mok et al., 2026a). The SLT, which is predicated on the notion that learning is a sociocultural activity, is supported by a persuasive theoretical explanation that is pertinent to the study (Young & Merriam, 2010).

In order to encourage student retention and prevent student attrition, research in adult education must go on. Although Hawkins (2018) elaborated on potential models that could be applied to self-directed learning methodologies, there is still more study to be done on classroom learning that incorporates autonomy and self-regulation. Since there is more to be done to help students, more research is required to better understand adult education (Hawkins, 2018; Moeurn, 2026a, 2026b, 2026c). Moeurn et al. (2025) found that there was little correlation between teaching philosophy and student involvement because the study's limitations suggested that more direct measurements of instructor behaviour, student learning, and student engagement would be necessary for future research. According to Rienties and Toetenel's (2016) compelling empirical research, learning design has a significant impact on students' academic retention and satisfaction. Their

study's most significant discovery was that learning activities and design had a direct impact on student retention (Rienties & Toetenel, 2016). Given that not all adult learners are autonomous, Cox (2015) proposed that a student-directed learning (SDL) teaching approach be taken into consideration. Students may need to rely on others in certain situations. For example, students may be more suited for convenience than for the self-directedness they have developed. In order to better train future facilitators, Cox (2015) recommended that future research look into educators' experiences and mistakes with their teaching strategies.

Students in university engage in three different ways (Moeurn et al., 2025; Mok et al., 2026a, 2026b). The three forms of engagement that secondary students experience are behavioural commitment, emotional commitment, and cognitive commitment (Durón-Ramos & García-Vázquez, 2018). According to Durón-Ramos and García-Vázquez (2018), behavioural commitment refers to active involvement, emotional commitment to the positive and negative reactions encountered in college, and cognitive commitment to the concept that motivates students to interact. According to Durón-Ramos and García-Vázquez (2018), when students in higher education experience favourable mental states, their performance improves. While Durón-Ramos and García-Vázquez (2018) urged additional research to confirm the connection between students' happiness and engagement activities, their study's findings showed that engagement behaviours helped students feel satisfied.

One of the main reasons why students perform poorly academically is pressure that they may have put on themselves. According to a 2017 research by the American College Health Association, among 63,000 students, stress accounted for 30.6% of poor academic performance, with anxiety coming in second at 24.2%. The third most common reason for subpar academic performance was depression (15.9%) (Moeurn et al., 2025). Numerous earlier research has focused on student satisfaction since academic performance has shown a need for communication in a study setting (Moghimi, Van Yperen, Sense, Zacher, & Scheibe, 2020). There are numerous ways for students to learn. But according to Drucker (1999), learning was mostly accomplished through three processes: speaking, listening, and reading. According to Carter, Bishop, and Kravits (2012), practically everyone has a distinct learning style and possible skill level from birth. According to Pousson and Myers (2018), the ideal Universal Instructional Design curriculum should incorporate learning options for students with a variety of backgrounds, learning styles, skills, and disabilities. According to the Center for Applied Special Technology (2018), the use of Universal Design in higher education maintains adaptable courses and learning environments.

It was unknown before this study whether and to what degree student-directed learning (SDL) at the university level was associated with their engagement and satisfaction. The literature on the connections between SDL experiences and their engagement practices and satisfaction levels at the RULE was lacking prior to this study. It was anticipated that this study will address local information needs. *This quantitative correlational study sought to ascertain whether and to what degree student-directed learning was associated with RULE undergraduate students' involvement and satisfaction. Students attending the four-year RULE in Phnom Penh were the intended audience.* SDL, student engagement, and student satisfaction were the variables of interest in this study. According to Guglielmino (2014), self-directed learning is theoretically characterised as a process in which the student takes ownership of their education and comes to grips with the necessity of organising and assessing their educational experiences. The SDL is very unique in adult education (Lollis, 2016), which is a phenomenon that adapts to the student's autonomy.

In 2015, the National Survey of Student Engagement (NSSE) conceptually defined student engagement as the overall amount of time and effort students devote to their education and study. According to Christenson (2012), students that actively participate in educational activities are practicing student engagement. Elliott and Shin (2002) describe student satisfaction conceptually as a student's stated approbation of his or her experiences, outcomes, or success attained with an institution. As more colleges and universities have adopted a marketing strategy to attract and retain quality students, student happiness, as defined operationally, is a desirable magnitude of a consumption-related process. The SSI is a two-dimensional survey. According to Juillerat (1995), student satisfaction important is a scale of the instrument that gauges how strongly students anticipate the significance of satisfaction in the learning process.

According to Juillerat (1995), the student satisfaction level is a scale of the instrument that gauges how satisfied students are with the learning process and whether or not their expectations have been realised.

Drucker's (1999) remarks that learning is essentially accomplished by three procedures served as the foundation for the construction of the research questions for this study. Drucker (1999) identified three processes of learning: speaking, listening, and reading. According to Carter et al. (2012), practically everyone has a distinct learning style and specific aptitude and potential from birth. The study by Rienties and Toetenel (2016), which provided compelling empirical evidence that learning design does have an impact on learner satisfaction and academic retention, served as the basis for the research questions. According to Pousson and Myers (2018), the principle behind universal instructional design is that curricula should offer learning options for students with a variety of backgrounds, learning styles, skills, and disabilities. The goal of using universal instructional design in higher education is to maintain adaptable courses and learning-friendly environments (Center for Applied Special Technology, 2018). The researcher considered the study's summary of variables to be crucial elements in the field of adult education. Student happiness has an impact on college and university recruitment and retention. Participation and success in the learning process have a direct impact on student satisfaction, which is the main reason this study is important.

The theories underlying this quantitative investigation are discussed in the section titled "Theoretical Foundation." O'Connor (2013) talked about the conventional lecture approach, which involves a lot of faculty members interacting with students in the classroom. It was said that the typical classroom setting was instructor-centered. Students may not participate completely in class activities when using the traditional teaching technique. However, Millis (2012) contended that small-group conversations increased students' problem-solving abilities, whereas Hamann, Pollock, and Wilson (2012) claimed that involvement in small-group discussions benefited student learning. Two theories that address SDL, student involvement, and student happiness from a fundamental standpoint are constructivism and SLT. According to Brubaker (2011), SLT lessons are intended to integrate both theoretical and real-world experiences, allowing students to apply course material to real-world situations. Nonetheless, academics are drawing a link between the theoretical and the practical. Previous studies have shown that a variety of factors influence both the learning moment and the social interaction that occurs throughout the cognitive learning process. According to Steiner (2014), learning and growth are social, cooperative endeavours for social constructivists.

When compared to the process of learning, experience is invaluable. SLT and practice-based learning serve as examples of how crucial experience is to learning in a college setting (Hodge et al., 2011). According to Hodge et al. (2011), absorption through modes of communication, such as participation and "storytelling," serves two purposes: communication will help sustain involvement in activities and incorporate a situated community or a classroom of student participants. To be clear, a situated community could be a collection of individuals who have similar interests and views on particular theories of student learning. By addressing real-life scenarios for classroom discussion, SLT significantly contributed to this study. Students at colleges and universities spend a significant amount of time and money on their education. Furthermore, according to Brubaker (2011), SLT is related to student involvement since learning happens through real-world situations. Instead of focusing on learning alone, SLT emphasises learners as groups that value learning (Yusoff et al., 2015). According to Ramírez-Montoya (2017), the majority of study has focused on authentic learning scenarios that develop a connection with professional experiences, where researchers found authentic learning to be important and vital.

II. METHODS

This is a quantitative study by its nature. The need for accurate measurements to be gathered through surveys and statistical analysis of the numerical data to reveal any trends or patterns in the data led to the choice of the quantitative approach for this study (Neill, 2007). To strengthen the study, gaining knowledge of both qualitative and quantitative research was taken into consideration. However, it was difficult to define qualitative research. Since there is no theory or collection of techniques that explicitly express ownership, there is no universally recognised definition for qualitative research (Rahman, 2016). According to Strauss

and Corbin (1990), qualitative research has both positive and bad impressions because it may entail emotions or social events and cannot be calculated using statistical methods (Rahman, 2016). Conversely, quantitative research is characterised by gathering and evaluating data that affects something in order to determine the degree to which the data provides answers to questions (Rahman, 2016).

In order to better understand assessment and strategic planning, the quantitative approach was used to gather and examine data from surveys that are widely used in higher education institutions (Porter et al., 2011). The plan is to gather information for a target population of 400 year-four students enrolled at the RULE using three surveys: (1) Student-Directed Learning Readiness Scale (S-LEAS); (2) Classroom Survey of Student Engagement (C-SSSEN); and (3) Student Satisfaction Inventory (S-SAIN).

A survey called the S-LEAS is used to gauge attitudes, skills, and traits associated with SDL (Merriam et al., 2007). The S-LEAS, a 5-Point Likert scale, was employed by the researcher in this quantitative investigation. The sum of the scores for each of the 58 elements was used to create a composite measure for the SDL score, which was roughly measured on an interval scale and ranged from 58 to 290. According to Laird et al. (2009), the C-SSSEN assessed how student behaviours in the classroom environment compared to the facilitators' values. While a composite measure for the C-SSSEN score was computed as the sum of the scores for all 48 items and ranged from 48-192, it was roughly measured on an interval scale. The C-SSSEN, a 4-point Likert scale, lists answers from 1 = never, rarely; to 2 = sometimes, 3 = often, and 4 = very often. Both an importance score and a satisfaction score were recorded by S-SAIN. Instructional effectiveness, which is the main focus of this quantitative correlational study since it may have an impact on student satisfaction, was the most significant item that students highlighted on the Student Satisfaction Inventory in previous studies. The total of the scores for all 70 questions was used to create a composite measure for the S-SAIN score, which roughly corresponds to an interval scale and ranges from 70 to 980.

To obtain a comprehensive picture of the student body, information was gathered from the morning, afternoon, and evening classes. To guarantee the students' total safety, participation was entirely voluntary and required no personal identification. Participants had access to the researcher's contact details so that anyone interested in the study's findings may get in touch with them. Justice was upheld since each participant received equitable treatment free from negative consequences, and privacy was prioritised by keeping the surveys in a lockbox. Fair treatment meant that there was no coercion to take part in the study, and participants were free to leave at any moment. The demographic questionnaire and the three surveys were filled out by the participants. The community college administration had granted permission to carry out the study. This study did not make use of social media or public data. The recruitment of student participation took place in the classes of faculty members. When evaluating the predictive relationship between continuous predictor variables and a continuous criterion variable, simple linear regression is suitable. All of the data analysis was done using IBM SPSS software.

It was the researcher's responsibility to make sure that there were no hidden intentions and that every attempt was made to conduct the study in accordance with ethical standards. The essential elements for guaranteeing that participants were respected and protected are respect for them and protection for those who have less autonomy. Each class of participants received instructions with judgements taken into consideration and the freedom to make their own decisions respected. Judgements were to either stop filling out the surveys completely or to stop filling them out once they had begun.

III. RESULT AND DISCUSSION

Results of The Continuous Variables' Summary Statistics

Once the accuracy of the data was determined, the data cleaning procedure was carried out. Typographical errors were eliminated and cross-checked as part of the data cleaning procedure. Every piece of information was recorded, and the data was determined to be accurate.

Table 1: Cronbach's alpha coefficients of Continuos Variables (n=400)

No.	Study Variable	Tool	Item	Min.	Max.	M	S.D.	Alpha
1.	Student-Directed Learning (SDL)	SLDRS	58	185	245	215.81	17.25	0.81
2.	Student Engagement (SEN)	CLASSE	48	88	137	99.89	17.18	0.92

3.	Satisfaction (Importance) (SAT-I)	SSI	70	175	495	445.50	65.68	0.99
4..	Satisfaction (Level) (SAT-L)	SSI	70	215	488	425.65	65.27	0.98

Table 1 displays the scales' summary statistics. The scales' Cronbach's alpha coefficients were calculated using the criteria given by George and Mallery (2020), which state that $\alpha > 0.9$ indicates excellent reliability, $0.9 > \alpha > 0.8$ indicates good reliability, $0.8 > \alpha > 0.7$ indicates acceptable reliability, $0.7 > \alpha > 0.6$ indicates poor reliability, and $\alpha \leq 0.5$ indicates unacceptable reliability. The four scales and three instruments' reliability satisfied the acceptable internal consistency level ($\alpha > 0.70$).

Results of Variables of Interest Measuring on Continuous and Ordinal Scales

Three straightforward linear regressions were part of of this study for parametric analysis. 400 participants with complete data for the relevant variables was the projected sample size. 400 respondents who completed their surveys made up the convenience sample that was selected for this study. The alternative strategy for nonparametric correlations was used because of the short sample size. Kendall's tau-b correlation technique yields reliable results on smaller samples, according to Laerd Statistics (2021). When dealing with limited sample sizes, Laerd Statistics (2021) suggests using Kendall's tau-b correlation analysis instead of parametric Pearson's correlation analysis. The assumptions for Kendall's tau-b correlation were confirmed before the analysis. First, it was assumed that the relevant variables were measured on ordinal or continuous scales. Since every variable was measured on a continuous scale, the first requirement of a Kendall's tau-b correlation was satisfied. The second premise was that each tested pair's variables had a monotonic relationship. The monotonicity assumption was tested using scatterplots. As seen in Figures 1-3, every scatterplot showed a consistently favourable connection.

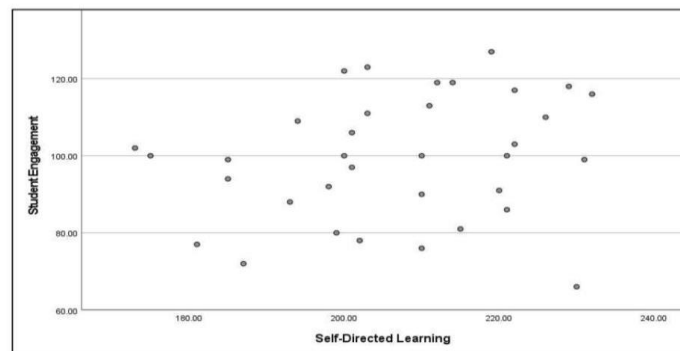


Fig.1: Scatterplot between SDL and SEN

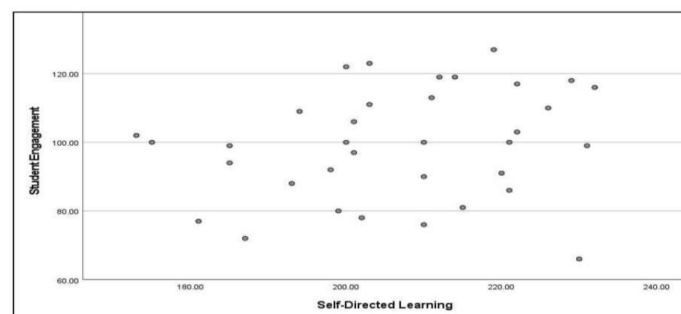


Fig. 2: Scatterplot between SDL and SAT-I

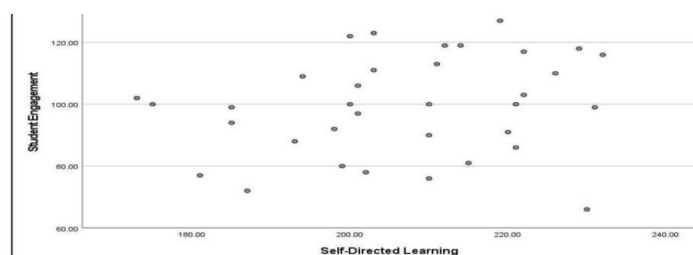


Fig.3: Scatterplot between SDL and SAT-L

Researchers (Mok et al., 2026a, 2026b; Sawers et al., 2016) found that faculty members saw students participating more actively when learning activities were given in a constructivist setting as opposed to a traditional classroom setting in a study that compared traditional instructor teaching philosophies with constructivist teaching methods (Mok et al., 2026a, 2026b; Sawers et al., 2016). According to Maher et al. (2018), teaching using Situated Learning Strategies is more crucial than memorisation because the material is analysed and applied to address problems. More study on constructivism and SLT in the context of college students' classroom learning is necessary. There has been significant progress with learning design influencing student achievement, despite the fact that studies have not yet linked learning design to learner performance (Mok et al., 2026a; Rienties & Toetenel, 2016). Rienties and Toetenel (2016), for instance, provided empirical evidence that learning design has a significant impact on academic retention and learner satisfaction.

Most faculty members instruct students using the conventional method of lecturing. According to Schultz (2015), faculty members are overburdened with paperwork and reviews, making it impossible for them to master new lecturing techniques because they do not have the time. Because certification rules prevent traditional methods of education from being disregarded, procedures impacted by them remove any chance of radical constructivist teaching approaches (Mok et al., 2026a, 2026b; Schultz, 2015). According to a study by Schultz (2015), technology was the most effective way to satisfy certification requirements. Because constructivism primarily relies on participation while solving challenges based on real-world concerns, Dennick (2016) characterised constructivism as using current information and producing new knowledge (Liangxiu et al., 2013). According to Patkin (2015), constructivists' perspective is in favour of the deep method of learning, which links new information to prior knowledge. Researchers found that faculty members saw students participating more actively in learning in the constructivist setting than in the conventional classroom setting in a study on teachers teaching philosophy using conventional techniques (Sawers et al., 2016).

Results of Assessing the Relationships of Students' SDL with Students' Engagement and Satisfaction

To evaluate the connections between students' SDL and their involvement and satisfaction, a Kendall correlation analysis was performed. The strength of the correlations was assessed using Cohen's standard, which states that coefficients between 0.10 and 0.29 suggest a minor impact size, coefficients between 0.30 and 0.49 indicate a moderate effect size, and coefficients above 0.50 indicate a strong effect size (Cohen, 1988).

Table 2: Results of Correlation Between SDL and SEN (n=400)

Combination	SDL	
	r_k	p
SEN	0.18	0.175

The correlations' findings are displayed in Table 2. The SDL and SEN showed a non-significant connection ($r_k = 0.18$, $p = 0.175$). There was shown to be a minor effect size between SEN and SDL. There was no rejection of the null hypothesis.

Table 3: Results of Correlation Between SDL and SAT-I (n=400)

Combination	SDL	
	r_k	p
SAT-I	0.19	0.137

The correlations' results are shown in Table 3. The SAT-I scale and SDL showed a non-significant connection ($r_k = 0.19$, $p = 0.137$). For the second research question, the null hypothesis was not disproved.

Table 4: Results of Correlation Between SDL and SAT-M (n=400)

Combination	SDL	
	r_k	p
SAT-L	0.15	0.278

Table 4 presents the results of the correlations. The SDL and SAT-L showed a non-significant connection ($r_k = 0.15$, $p = 0.278$). There was no rejection of the research question's null hypothesis

One of the main activities of universities that is impacted by student satisfaction is recruiting and retaining students. The significance of this study stems from the fact that student happiness is directly impacted by a feeling of achievement and involvement in the educational process. Ranvar (2015) investigated the connection between adult education and SDL. 550 workers at an insurance firm made up the population, while 214 undergraduate employees made up the statistical sample. The SDL is crucial for adult learners with an educational background (Ranvar, 2015). The sample for Ranvar's descriptive correlational analysis was chosen at random. Following incomplete questionnaires, 195 completed surveys were accepted. It was explained that the sample size percentage made the number of samples appropriate. The Dupeyrat and Maryan (2005) questionnaire used to gauge student interest has a Cronbach alpha of 0.77. Additionally, it was shown that the predictor factors accounted for 7% of the variations in SDL, the criterion variable. The SDL and engagement are significantly correlated, according to Ranvar's (2015) study. Sternberg and Griforenko's (1997) study likewise produced findings that were in line with Ranvar's (2015) findings.

Kirmizi (2015) investigated the connection between secondary school student happiness and learning readiness. The SDL was the independent variable, and student satisfaction was the dependent variable. The English Language and Literature Department at a Turkish university had 84 students enrolled. 65.5% of respondents expressed satisfaction with the degree of participation in the classrooms. According to Kirmizi's survey, 69.1% of teachers were able to implement a plan for their courses in regard to SDL. According to Kirmizi (2015), there was a positive correlation between SDL and student happiness ($r = 0.28$, $p = < 0.1$).

IV. CONCLUSION

Before this study, it was unknown whether and to what extent the student-directed learning was related to their engagement and contentment at the RULE undergraduate students in Cambodia. The objective of this quantitative correlational study was to answer the question of whether and to what extent was students' self-directed learning connected to the RULE students' involvement and satisfaction. The study design was correlational and quantitative approach was used. The findings of the research highlighted the relationship between students' self-directed learning and their levels of engagement, importance, and satisfaction. Nonparametric correlations indicated no significant associations between self-directed learning and student involvement, level of satisfaction, or importance. These results are not final, given the limited convenience sample and poor statistical power. Constructivism is a teaching method in which students play an active role in the teaching and learning process.

By doing so, it found that learner-centred and active instructional teaching styles are not well studied and that traditional lectures are the most popular approach for teaching undergraduates. Additionally, it examined the connections between student engagement and learner interaction as well as the impact of faculty presence on student satisfaction. Future research using more direct measures of instructor behaviour, student learning, and student engagement is necessary, as previous findings indicated that learner interaction may have an impact on student learning designs and that course structure may have a significant impact on student satisfaction. The researcher's initial suggestion would be to carry out an online investigation. Second, in order to guarantee adequate statistical power, the researcher should aim to recruit a considerably larger student population that is appropriate for the planned statistical study.

Third, in order to get a more representative sample and provide conclusions that can be used generally, the study should be carried out at multiple colleges. Fourth, future studies should account for additional elements that impact classroom learning, such as the faculty members' potential use of transactional and transformational leadership styles.

REFERENCES

- [1]. Brubaker, J. (2011). Undergraduate political communication in action: Volunteer experiences in a situated learning course. *Innovations in Education and Teaching International*, 48(1), 3–12. <https://eric.ed.gov/?id=EJ917700>
- [2]. Carter, C., Bishop, J., & Kravits, S. L. (2012). Keys to success: Building analytical, creative, and practical skills. *Focus*, 2, 50. <https://www.pearson.com/us/higher-education/product/Carter-Keys-to-Success-Building-Analytical-Creative-and-Practical-Skills-7th-Edition/9780137073603.html>
- [3]. Center for Applied Special Technology. (2018). Universal design for learning. <https://www.cast.org>
- [4]. Christenson, S. L., Reschly, A. L., & Wylie, C. (Eds.). (2012). *The handbook of research on student engagement*. Springer Science. <https://doi.org/10.1007/978-1-4614-2018-7>
- [5]. Cox, T. D. (2015). The case of self-directed learning strategies in graduate teaching. *Journal of Learning in Higher Education*, 11(1), 17–22. <https://eric.ed.gov/?id=EJ1141923>
- [6]. Dennick, R. (2016). Constructivism: Reflections on twenty years teaching the constructivist approach in medical education. *International Journal of Medical Education*, 7, 200–205. <https://pubmed.ncbi.nlm.nih.gov/27344115/>
- [7]. Drucker, P. F. (1999). *Management challenges for the 21st century*. Harper Collins Publisher Inc.
- [8]. Dupeyrat, C., & Mariné, C. (2005). Implicit theories of intelligence, goal orientation, cognitive engagement, and achievement: A test of Dweck's model with returning to school adults. *Contemporary Educational Psychology*, 30(1), 43–59. <https://doi.org/10.1016/j.cedpsych.2004.01.007>
- [9]. Durón-Ramos, M. F., & García-Vázquez, F. (2018). Orientation to happiness as predictor of university students' engagement. *International Journal of Evaluation and Research in Education*, 7(4), 294–298. <https://doi.org/10.11591/ijere.v7.i4.pp294-298>
- [10]. Elliott, K. M., & Shin, D. (2002). Student satisfaction: An alternative approach to assessing this important concept. *Journal of Higher Education Policy and Management*, 24, 197–209.
- [11]. George, D., & Mallery, P. (2020). *IBM SPSS step by step: A simple guide a reference* (16th ed.). Allyn and Bacon.
- [12]. Guglielmino, L. (2014). Guglielmino: Self-directed learning for the 21st century—What research says. *Home: News and Events*, 1(7). <http://www.p21.org/news-events/p21blog/1472-bellanca-and-guglielminothe-self-directed-pathway-to-deeper-learning>
- [13]. Hamann, K., Pollock, P. H., & Wilson, B. M. (2012). Assessing student perceptions of the benefits of discussions in small-group, large-class, and online learning contexts. *College Teaching*, 60, 65–75. <https://doi.org/10.1080/87567555.2011.633407>
- [14]. Hawkins, M. W. (2018). Self-directed learning as related to learning strategies, self-regulation, and autonomy in an English language program: A local application with global implications. *Studies in Second Language Learning and Teaching*, 8(2), 445–469. <https://doi.org/10.14746/ssllt.2018.8.2.12>
- [15]. Hodge, P., Wright, S., Barraket, J., Scott, M., Melville, R., & Richardson, S. (2011). Revisiting 'how we learn' in academia: Practiced-based learning exchanges in three Australian universities. *Studies in Higher Education*, 36(2), 167–183. <https://occupyexcellence.files.wordpress.com/2012/07/hodge-wright-barraket-scott-melville-richardson-2011.pdf>
- [16]. Juillerat, S. L. (1995). *Investigating a two-dimensional approach to the assessment of student satisfaction: Validation of the student satisfaction inventory* (Publication No. 9527493) [Doctoral dissertation, Temple University]. ProQuest Dissertations Publishing. <https://www.proquest.com/openview/a45206d4de0a13fa90e201ac4dbec841/1?pq-origsite=gscholar&cbl=18750&diss=y>
- [17]. Kirmizi, O. (2015). The influence of learner readiness on student satisfaction and academic achievement in an online program at higher education. *The Turkish Online Journal of Educational Technology*, 14(1), 133–142. <https://files.eric.ed.gov/fulltext/EJ1057353.pdf>
- [18]. Laerd Statistics. (2021). Kendall Tau's b using SPSS Statistics. <https://statistics.laerd.com/spss-tutorials/kendalls-tau-b-using-spss-statistics.php>
- [19]. Liangxiu, H., Harries, J., & Brown, P. (2013). Building a virtual constructivist learning environment for learning computing security and forensics. *ITALICS: Innovations in Teaching & Learning in Information & Computer Sciences*, 12(1), 49–61. <https://doi.org/10.11120/ital.2013.00006>
- [20]. Lollis, W. M. A. (2016). Self-directed learning readiness, student satisfaction, self-confidence, and persistence in associate degree nursing students. Capella University.

- [21]. Maher, P. A., Bailey, J. M., & Tucka, A. M. (2018). Teaching process skills to pre-engineers using situated learning: A case study. *International Journal of Engineering Pedagogy*, 8(5). <https://doi.org/10.3991/ijep.v8i5.9036>
- [22]. Merriam, S., Caffarella, R., & Baumgartner, L. (2007). Learning in adulthood: A comprehensive guide (4th ed.). Jossey-Bass.
- [23]. Millis, B. J. (2012). Active learning strategies in face-to-face courses (IDEA Paper No. 53). The IDEA Center. http://www.theideacenter.org/sites/default/files/paperidea_53.pdf
- [24]. Moeurn, C. (2025b). The challenges and strategic recommendations for student services in higher education in Cambodia. *Educative: Jurnal Ilmiah Pendidikan*, 3(2), 83-110. <https://doi.org/10.70437/educative.v3i2.1316>
- [25]. Moeurn, C. (2025c). The current student services in higher education: Key challenges and solution priorities. *Journal of Education Research*, 6(4), 912-934. <https://doi.org/10.37985/jer.v6i4.2951>
- [26]. Moeurn, C. (2025d). Enhancing students' cognitive skills through interactive learning strategies in science education. *Educative: Jurnal Ilmiah Pendidikan*, 3(3), 135-148. <https://doi.org/10.70437/educative.v3i3.1496>
- [27]. Moeurn, C. (2025b). The role of student services in improving student learning in higher education in Cambodia. *Journal of Education Research*, 6(2), 427-441. <https://doi.org/10.37985/jer.v6i2.2281>
- [28]. Moeurn, C. (2026a). A comprehensive literature review on the role of networking skills in enhancing graduate employability. *Educative: Jurnal Ilmiah Pendidikan*, 4(1), 14-24. <https://doi.org/10.70437/educative.v4i1.1603>
- [29]. Moeurn, C. (2026c). Higher education in Cambodia: An empirical study of student challenges. *International Journal of Indonesian Education and Teaching*, 10(2), 217-237. <https://doi.org/10.24071/ijiet.v10i2.14708>
- [30]. Moeurn, C. (2026b). How do student services enhance student learning and success? Evidence from Cambodian higher education institutions. *Journal of Education Research*, 7(3), 2775-2786. <https://doi.org/10.37985/jer.v7i3.3939>
- [31]. Moeurn, C., Mok, S., & Chhoeung, C. (2026). The practice of student services for future education in Cambodia: The case of public higher education institutions. *Proceedings of the International Conference*, 1(1), 482-500. <https://prosiding.unma.ac.id/index.php/ic/article/view/1454>
- [32]. Moeurn, C., Sam, C., & Mok, S. (2025). The practice of student services in Cambodia: A case study of public higher education institutions. *Cambodian Journal of Education and STEM*, 3(1), 66-102. <https://doi.org/10.62219/cjes.2025314>
- [33]. Moghimi, D., Van Yperen, N. W., Sense, F., Zacher, H., & Scheibe, S. (2020). Using the selection, optimization, and compensation model of action-regulation to explain college students' grades and study satisfaction. *Journal of Educational Psychology*. Advance online publication. <https://doi.org/10.1037/edu0000466>
- [34]. Mok, S., Khath, B., Lim, S., Em, S., Khim, D., Morn, S., & Um, S. (2026). Technostress creators, technostress inhibitors, and transformational leadership among academic administrators: Evidence from Preah Sihamoniraja Buddhist University, Cambodia. *Journal of Educational Technology and Learning Creativity*, 4(1), 297-308. <https://doi.org/10.37251/jetlc.v4i1.2851>
- [35]. Mok, S., Tep, N., Yen, S., Hor, M., Hok, P., & Voeun, C. (2026a). Pushed by pain or pulled by vision: Transformational leadership and its implications on curriculum reform within higher education institutions in the Khmer context. *Daengku: Journal of Humanities and Social Sciences Innovation*, 6(3), 575-599. <https://doi.org/10.35877/454RI.daengku5024>
- [36]. Neill, S. (2007). Qualitative versus quantitative research: Key points in a classic debate. <http://www.wilderdom.com/research/QualitativeVersusQuantitativeResearch.html>
- [37]. O'Connor, K. J. (2013). Class participation: Promoting in-class student engagement. *Education*, 133(3), 340-344. <https://eric.ed.gov/?id=EJ1022223>
- [38]. Patkin, D. (2015). Various ways of inculcating new solid geometry concepts. *International Journal of Education in Mathematics, Science and Technology*, 3(2), 140-154. <https://files.eric.ed.gov/fulltext/EJ1063389.pdf>
- [39]. Porter, S. R., Rumann, C., & Pontius, J. (2011). The validity of student engagement survey questions: Can we accurately measure academic challenge? *New Directions for Institutional Research*, (150), 87-98. <https://eric.ed.gov/?id=EJ931464>
- [40]. Pousson, J. M., & Myers, K. A. (2018). Ignatian pedagogy as a frame for universal design in college: Meeting learning needs of generation Z. *Education Sciences*, 1-10. https://www.researchgate.net/publication/328756369_Ignatian_Pedagogy_as_a_Frame_for_Universal_Design_in_College_Meeting_Learning_Needs_of_Generation_Z

- [41]. Rahman, S. (2016). The advantages and disadvantages of using qualitative and quantitative approaches and methods in language “testing and assessment” research: A literature review. *Journal of Education and Learning*, 6(1). <https://files.eric.ed.gov/fulltext/EJ1120221.pdf>
- [42]. Ramírez-Montoya, M. S. (Ed.). (2017). Handbook of research on driving STEM learning with educational technologies. IGI Global. <https://eric.ed.gov/?id=ED574999>
- [43]. Ranvar, S. (2015). The relationship between self-directed learning and the parameters affecting adult education. *European Online Journal of Natural and Social Sciences*, 4(3), 489–499. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6967229/>
- [44]. Rienties, B., & Toetenel, L. (2016). The impact of 151 learning designs on student satisfaction and performance: Social learning (analytics) matters. In Proceedings of the Sixth International Conference on Learning Analytics & Knowledge (pp. 339–343). <http://oro.open.ac.uk/46321/1/p339-rienties.pdf>
- [45]. Sawers, K. M., Wicks, D., Mvududu, N., Seeley, L., & Copeland, R. (2016). What drives student engagement: Is it learning space, instructor behavior, or teaching philosophy? *Journal of Learning Spaces*, 5(2), 26–38. <http://libjournal.uncg.edu/jls/article/view/1247>
- [46]. Schultz, R. A. (2015). Revisiting constructivist teaching methods in Ontario colleges preparing for accreditation. *College Quarterly*, 18(2), 1–10. <https://eric.ed.gov/?id=EJ1079231>
- [47]. Steiner, D. M. (2014). Learning, constructivist theories of. *Value Inquiry Book Series*, 276, 319–320. <https://files.eric.ed.gov/fulltext/EJ1165614.pdf>
- [48]. Sternberg, R. J., & Grigorenko, E. L. (1997). Are cognitive styles still in style? *American Psychologist*, 52(7), 700–712. <https://doi.org/10.1037/0003-066X.52.7.700>
- [49]. Strauss, A. L., & Corbin, J. M. (1990). *Basics of qualitative research* (Vol. 15). Sage. <https://us.sagepub.com/en-us/nam/basics-of-qualitative-research/book235578>
- [50]. Young, S. K., & Merriam, S. B. (2010). Situated learning and identity development in a Korean older adults’ computer classroom. *Adult Education Quarterly*, 60(5), 438–455. https://getd.libs.uga.edu/pdfs/kim_young-sek_200805_phd.pdf
- [51]. Yusoff, M., McLeay, F., & Woodruffe-Burton, H. (2015). University of Wollongong Research Online Faculty of Business Papers. Faculty of Business. <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1641&context=buspapers>.