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Combating learning loss: How do students engage cognitively and affectively in online-based academic activities?

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ABSTRACT

During the pandemic, education faces the problem of learning loss, however online academic activities can assist. This research addresses cognitive and affective online-academic engagement. This quantitative research of 208 students at private universities in Jakarta uses an observational technique and an explanatory design. This study analyzes the measurement and structural model of the relationship between factors from the emotional intelligence aspects and self-regulated learning in the flipped classroom context. The research findings indicate that students' cognitive and affective engagement is on track, as determined by their task persistence which can be established through effort and performance evaluation when completing the assignment. Effort and evaluation begin with self-awareness as a foundation for orientation and commitment. This study paves the way for further investigation of other findings that indicate the need to allocate and optimize time during pre-class activities while educating and encouraging students' persistence. Without tremendous effort and evaluation on the part of students, time on task for work can result in low-quality performance. These findings could drive teachers to construct engaging lesson plans by incorporating emotional intelligence and self-regulated learning prior class.

1. Introduction

In the twentieth century, students in the world incurred learning losses due to global education systems experiencing severe disruption because of the emergency nature of the Covid-19 outbreak. Some countries are still unprepared to deal with prolonged shutdown periods [1]. Adjustments were implemented, including transitioning from face-to-face offline learning to online learning. However, it is a significant challenge for instructors, instructors, and institutions because teachers were unprepared for this change. At the same time, they were compelled to develop emergency remote-learning tools practically soon [2]. Reports of learning loss experienced by students are included in the synthesis of two study reports from higher education institutions in Spain and the United States by Donnelly and Patrinos [3]. In the United States, Orlov et al. [4] found a decline in student performance and total assessment scores in the pandemic semester. In Spain, Gonzalez et al. [5] found that student learning progress improved rather than decreased during the Covid-19 learning disruption period. That is only for university students studying STEM courses at one university.

Meanwhile, Shin and Hickey [6] revealed that college students faced learning loss, so the Covid-19 crisis reinforced or strengthened educational and social inequality. Given that higher education graduates are young adults in the nation's job force, it is a sharp reminder of the country's vulnerability. These individuals will be necessary for the future [7] to meet the difficulties of change in their lives as they occur [8]. Several pieces of research have investigated the origins of learning loss. During the pandemic, online students in Indonesia experienced changes in saturation, seriousness, engagement in learning, learning motivation, and academic satisfaction [9]. Moreover, students in New Jersey experience a decline in their enthusiasm to learn, and the learning gap is widening [6]. Vaghjee and Vaghjee [10] in Mauritius likewise observed that the level of student participation was inadequate because they felt isolated and disconnected when higher education institutions shifted to online learning. Walker and Koralesky [11] claimed that student engagement decreased after switching to online instruction.. It was also reported that while students' cognitive engagement improved, their affective involvement declined. Ober et al. [12] are also nearly the same. They discovered that students who experienced a change in their learning process due to the condition reported a significant rise in affective engagement but a significant drop in cognitive engagement. Orlov et al. [4] found that active student engagement significantly mitigates the harmful consequences of learning loss.

Vaghjee and Vaghjee [10] promote student engagement as a quality criterion that significantly determines their success in completing online learning. Studies on learning loss have been linked to the issue of student engagement in online learning. Recent research linked student engagement to their metacognitive abilities of awareness and self-control [13]. Sun et al. [14] also suggest raising student awareness of online learning. Moreover, the researchers believe that issues with learning loss can be overcome by students' cognitive and affective engagement that results from awareness. However, this theme has a low explanatory value. This study investigates the effect of awareness support on students' cognitive and affective engagement in a flipped learning context. This context is the most popular pedagogical approach [15] for increasing student engagement, performance, and pleasure in the classroom [13]. In its implementation, students learn the material as homework before class and then engage in collaborative activities in class [14], [15]. In pre-class, students must manage the amount of time spent effectively to make an effort to complete all assigned work [16], [17], [18]. Students accomplish this through developing emotional intelligence and personal competencies, including self-awareness and self-management [19], meta-learning, self-identity as a learner, and reflection [20]. According to Atmojo et al. [21], online education promotes greater independence and self-awareness among students. Therefore, self-awareness is causal since it can alter students' learning behaviors to a more autonomous form of regulation [22].

Students' behaviors include defining internal goals, determining internal instrumental activities, demonstrating personal responsibility, and performing internal control [22]. An example would be how they effectively manage their time, resources, and learning strategies [14]. Moreover, since students are not under the teacher's supervision, their responsibility concerning the subject, time, and learning style has a more significant impact [13], [23]. Emotional intelligence, self-determination, and self-regulated learning theory are the foundation for this research framework. Several pieces of research have found that virtual flipped learning environments affect students' cognitive engagement [24]–[26] and affective engagement [27]–[30]. According to the findings of a different study, self-awareness predicts students' online behavior [31] and has a significant impact on cognitive engagement [32] and affective engagement [19]. Consistent with this and to prevent learning loss, this research examines factors of emotional intelligence aspects and self-regulated learning in the flipped learning context as facilitators of student engagement, particularly cognitive and affective engagement in online academic activities.

2. Method

This quantitative study employs an observational design with an explanatory component. This study examined the teaching experience of students at a private university in Jakarta, Indonesia. Students enrolled in the university's six academic programs are included in this study. This research follows the flipped learning context for in-class online-based activities, which are regulated by pre-class. The emphasis on preventing learning loss is on how students' cognitive and affective engagement is motivated by their self-awareness. An overview of the research framework is in Fig.1. On Fig.1, the emotional intelligence aspect comprises self-awareness (SA) [19], [32], and emotional regulation grow self-orientation (SO) [33], and felt obligation (FO) [34]. In contrast, the flipped

learning context comprises task completion (TC), time-on-task (TT) [16]–[18], and arise persistence (PS) [35], [36]. Consequently, this study examines the following hypotheses: (1) Is the effect of self-awareness significant on self-orientation and felt obligation? (2) Is the effect of self-orientation and felt obligation significant on homework completion and time-on-task? (3) Is the effect of homework completion and time-on-task significant on persistence? Moreover, (4) is the effect of persistence significant on cognitive and affective engagement.

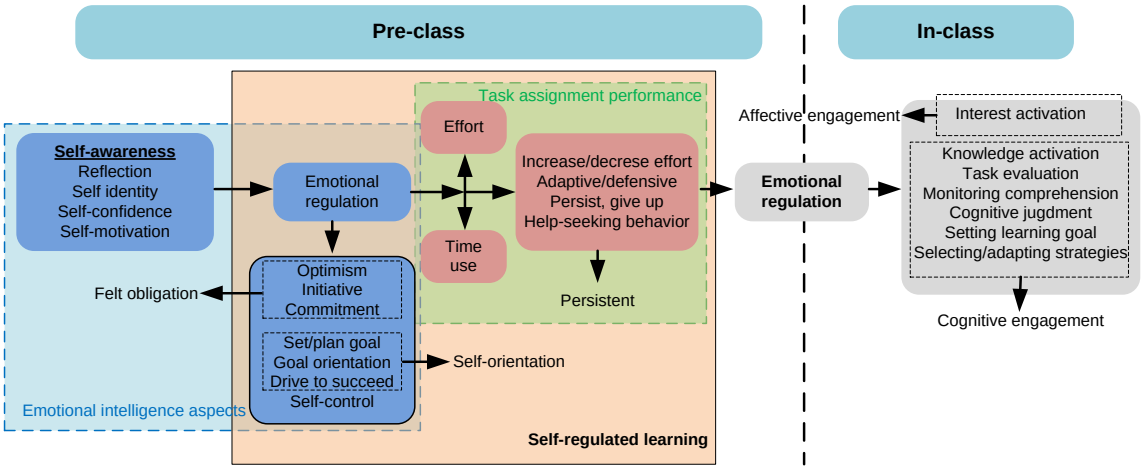

Fig. 1. Flipped learning context for a research framework

For performance in pre-class assignments, students still require a time management strategy, which is described in this study as a time-on-task factor, namely the allocation (TT1) and time optimization (TT2) necessary for academic activities conducted online [18]. Moreover, strategy elaboration, which is as task completion such as completion effort (TC1) and job evaluation (TC2) [17], [37], is also required. Meanwhile, several additional variables were found, including (1) self-awareness, specifically regarding self-concept (SA1) and internal reflection (SA2) [38]; (2) self-orientation, namely regarding personal motive (SO1) and mindfulness intervention (SO2) [39], [40]; (3) felt-obligation, specifically about the intention to stay (FO1), recovery performance (FO2), and affective commitment (FO3) [41], [42]; (4) persistence, precisely adaptability (PS1), resilience (PS2), and personal commitment (PS3) [16], [35], [43]; (5) cognitive engagement, namely about assessing learning progress (CgE1), setting learning goals (CgE2), monitoring comprehension (CgE3), and using learning strategies (CgE4) [44]; and (6) affective engagement, namely about emotions (AfE1) and feelings that motivate a student to participate in a particular activity, task, or experience (AfE2) [17].

A questionnaire was used to obtain data from students. The questionnaire has statement items with a range of 0-4. It is published online and circulated to students' social media groups during the study period. Since students complete the form voluntarily, researchers cannot ensure that each group member will express their opinion; therefore, researchers believe that random assignment incorporates the naturally occurring sampling process. Two hundred eight students served as the sample for this study. PLS-SEM was utilized to evaluate the data in this study. Hair Jr et al. [45] recommends the following steps for determining a model's suitability: (1) confirming that the recommended outer loading is 0.7 and comparing it to the cross-loading value; (2) confirming that the recommended composite reliability is higher than 0.7; (3) determining convergent validity at an Average Variance Extracted (AVE) value of at least 0.5; and (4) determining discriminant validity using the Fornell-Larcker criterion by comparing the square root of AVE to the value of the link between the other components.

After they have all met the evaluation criteria for the measurement model, the structural model is evaluated using the following stages: (1) VIF value should be greater than 0.20 but less than 5; (2) a minimum of 5000 bootstrap samples should be used to determine the importance of path coefficients; (3) bootstrapping confidence intervals give additional information about the stability of path coefficient estimations; (4) coefficients of determination (R^2) and construct values of 0.75, 0.50, or 0.25 are considered substantial, moderate, and weak, respectively; (5) f^2 effect sizes of 0.02, 0.15, and 0.35 denote the modest, medium, or significant effect of a construct, respectively; (6) blindfold

participants and use the omission distance (D=7) to generate cross-validated redundancy measures for each construct; Q^2 values greater than 0 imply that the constructs have predictive relevance; (7) Using q_2 effect sizes as a proxy for predictive significance, q^2 values of 0.02, 0.15, and 0.35 imply that the construct has a low, medium, or high predictive importance.

3. Results and Discussion

This research does not use the trimming procedure because the data analysis results meet all applicable standards for evaluating measurement and structural models. Additionally, the following Table 1 summarizes the model evaluation outcomes. According to Table 1, (1) all loading factors are greater than 0.7; (2) the CR value of each variable is greater than 0.7 but less than CR; (3) AVE is greater than 0.5; and (4) the square root of the AVE of a construct (SA=0.922, SO=0.871, FO=0.846, TT=0.789, TC=0.807, PS=0.814, CgE=0.891, AfE=0.889) is greater than its highest correlation (SA↔SO=0.757, SO↔CgE =0.869, TT↔CgE=0.600, TC↔CgE=0.781, PS↔CgE=0.814, CgE↔SO=0.869, AfE↔FO=0.668) with any other construct, but it is not for square root of the AVE of FO (0.846) because the highest correlation with any other construct is 0,853 (FO↔CgE).

Table 1. Measurement Model Evaluation Results and VIP

Variable	Code	Mean	SD	Loading	CR	α	AVE	VIP
Self-awareness	SA1	3.049	.555	.920	.919	.825	.851	1.969
	SA2	2.996	.619	.924				1.969
Self-orientation	SO1	3.047	.606	.900	.863	.685	.758	1.372
	SO2	3.198	.587	.841				1.372
Felt obligation	FO1	3.260	.599	.848	.883	.802	.715	1.778
	FO2	3.214	.607	.880				1.817
	FO3	3.153	.609	.806				1.611
Academic activity factors:	TT1	3.307	.601	.848	.766	.398	.622	1.066
TT (time-on-task)	TT2	2.542	.950	.725				1.066
TC (task completion)	TC1	3.536	.562	.750	.788	.472	.652	1.106
	TC2	3.068	.620	.861				1.106
Persistence	PS1	3.187	.653	.867	.854	.744	.663	1.714
	PS2	3.278	.598	.841				1.665
	PS3	3.618	.474	.727				1.304
Cognitive engagement	CgE1	3.082	.558	.889	.939	.913	.793	2.864
	CgE2	3.254	.536	.867				2.545
	CgE3	3.145	.586	.896				4.068
	CgE4	3.128	.596	.907				4.341
Affective engagement	AfE1	3.016	.660	.866	.882	.736	.790	1.512
	AfE2	3.261	.552	.910				1.512

Hair Jr et al. (2021) stated that cross-loading is another alternative to assessing discriminant validity. On its assigned construct, an indicator's loading (FO1=0.848, FO2=0.880, FO3=0.806) is higher than all of the highest cross-loadings (FO1↔CgE=0.672 FO2↔PS=0.796, and FO3↔CgE= 0.717) with other constructs. Thus, the assessment of the measurement model's applicability has met the criteria, and the following study assesses the structural model. According to Table 1, all VIP values lie between 0.2 and 5. In contrast, the remaining evaluation results are summarized in Table 2 and 3.

According to Table 2, the effect of (1) self-awareness on self-orientation was significant (β_{direct}=0.758, p<0.001) and felt obligation was significant (β_{direct}=0.733, p<0.001); (2) self-orientation was significant on time-on-task (β_{direct}=0.300, p<0.05) and task completion (β_{direct}=0.446, p<0.001); and (3) felt obligation was significant on time-on-task (β_{direct}=0.266, p<0.05) and task completion (β_{direct}=0.363, p<0.001) respectively. With a significant predictive level, self-awareness can account for the variance in self-orientation ((R^2=0.572 or 57.2%) and felt-obligation (R^2=0.538 or 53.8%)). Meanwhile, self-orientation and perceived obligation can explain the variance in time spent on the task (R^2=0.284 or 28.4%) with a moderate level of prediction and task completion (R^2=0.591 or 59.1%) with a substantial level of prediction.

Direct effect Table 3 show that the effect of: (1) time-on-task was not significant on persistence (β_{direct}=0.105, p>0.05), (2) task completion was significant on persistence (β_{direct}=0.718, p<0.001), (3) persistence was significant on cognitive engagement (β_{direct}=0.815, p<0.001) and affective engagement (β_{direct}=0.618, p<0.001) respectively.

Table 2. Direct effect for the time-on-task and task completion model

Independent Variable	Dependent Variable							
	Self-orientation		***Felt obligation***		***Time-on-task***		***Task complete.***	
	B	CI	*B*	CI	*B*	CI	*B*	CI
Self-awareness	.758***	.685-.823	.733***	.645-.806	-	-	-	-
R^2 (q^2)	.572 (.417)		.538 (.379)		-	-	-	-
Self-orientation	-	-	-	-	.300*	.078-.533	.446***	.184-.690
Felt obligation	-	-	-	-	.266*	.005-.505	.363**	.139-.596
R^2 (q^2)	-	-	-	-	.284 (.162)		.591 (.372)	

All significant paths are presented in Fig.1. Then, time-on-task and task completion together can explain the variance persistence (R^2=0.615 or 61,5%) with a substantial level of prediction. In contrast, persistence can explain the variance of cognitive engagement (R^2=0.662 or 66,2%) with a substantial level of prediction and affective engagement (R^2=0.380 or 38%) with a moderate level of prediction.

Table 3. Direct effect for the facilitator of cognitive and affective engagement

Independent Variable	Dependent Variable					
	Persistence		***Cognitive engagement***		***Affective engagement***	
	B	CI	*B*	CI	*B*	CI
Time-on-task	.105	-.012-.220	-	-	-	-
Task completion	.718***	.606-.822	-	-	-	-
R^2 (q^2)	.615 (.395)		-	-	-	-
Persistence	-	-	.815***	.757-.866	.618***	.498-.722
R^2 (q^2)	-	-	.662 (.517)		.380 (.230)	

Additionally, the analysis reveals that the f^2 values for (1) self-awareness on felt obligation (1.163) and self-orientation (1.339) show a significant influence size; (2) self-orientation on task completion (1.171) has a significant effect size, while time-on-task (0.043) has small effect size; (3) felt obligation on task completion (1.111) has a significant effect size, while time-on-task (0.034) has small effect size; and (4) task completion on persistence (0.899) has a significant effect size; (5) time-on-task on persistence (0.018) has a negligible effect size; (6) persistence on cognitive engagement (1.964) and affective engagement (0.511) has a significant effect size. Additionally, the model test results indicate that all Q^2 values are more significant than 0. It indicates that the model has predictive relevance values, with q^2 representing time on task (0.162) and affective engagement (0.230), indicating moderate predictive relevance, and representing self-orientation (0.417), felt obligation (0.379), task completion (0.372), persistence (0.395), and cognitive engagement (0.517), indicating high predictive relevance.

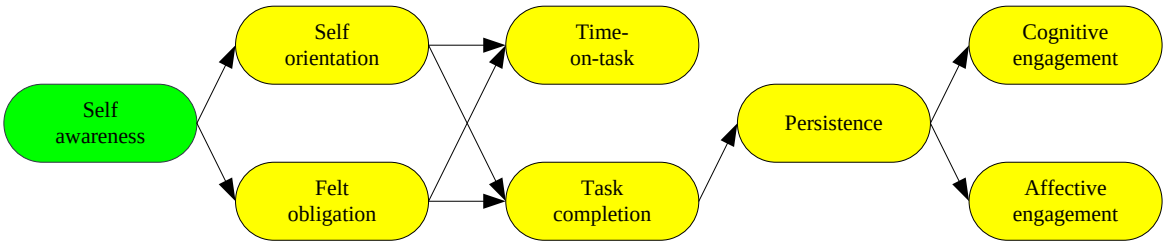

Fig. 2. The significant path

3.1. Facilitator for Cognitive and Affective Engagement

Persistence was found to affect cognitive and affective engagement in this study significantly. These findings emphasize the importance of persistence in cognitive and affective engagement in

academic activities conducted online. In other words, persistence is one of the causal factors affecting engagement (apart from the construct) and a facilitator of that meaning [46], which includes learner attributes [37], [47]. Persistence, this study revealed, affects whether students keep or withdraw from their engagement. Persistence is a dimension of behavioral engagement in some studies [48], [49], and it has a direct effect on cognitive engagement [50]. Vasalampi et al. [51] also found that concentrated and persistent behavior during a particular lesson was associated with a high level of positive emotional engagement during that lesson. It confirms the findings of Deather-Deckard et al. [52] that positive emotion is a component of motivation measured by the affective engagement variable.

Persistence also refers to students' proclivity to maintain effort in the face of hurdles in terms of sustained commitment to learning and significant effort [53]. Moreover, Vollet and Kindermann [54] define perseverance as the behavior of students who desire to reengage in the process. Thus, when students seek to reengage and maintain consistency following encounters with difficulties, it is not for reasons other than cognitive and affective involvement. Further, Hamilton et al. [55] found that students with a highly transformative experience in a virtual learning environment reported significantly higher positive emotions, interest, cognitive strategy use, and self-regulation. It provides them with additional cognitive and motivational benefits. Additionally, Dubovi's [56] findings indicate that the virtual reality procedural learning phase, as a reengaging learning activity, elicited more enthusiastic facial expressions and a more significant mental effort.

Furthermore, this research reveals that task completion facilitated persistence which does not contradict Demir and Souldatos's [57] claim that students who perform better on homework put in more effort to solve difficulties. Muljana et al. [37] also claimed that students who use successful techniques, such as cognitive strategies and resource management, to assist them in surviving and overcoming obstacles during task completion could influence the task's quality of completion. It is about the grades students award for academic assignments that are directly tied to their performance on tasks such as homework and influence their behavior to invest effort and persistence [47]. In other words, students have developed tenacity due to their efforts to address in-task challenges [37]. This is supported by Dumdumaya et al. [36], who found that more persistent students demonstrate more effective help-seeking behavior and higher task and resource engagement levels. Students' engagement is frequently the most significant risk factor for inactivity in work-related activities [58]. Thus far, evidence indicates that when students participate in tasks, they are more likely to exhibit persistence and good achievement [47]. Additionally, the following part discusses the two approaches used by the structural model in forming task completion.

In contrast, the findings of this study demonstrate that the time-on-task component does not affect students' persistence, presenting an opportunity for other researchers to investigate the topic further. According to Muljana et al. [37], time-on-task, which refers to the number of times students spend engaged in their academic activities, does not simultaneously train students for persistence. Namely, some students (62.46 %) do not begin their homework until they have less than 24 hours before it is due, resulting in a low quality of work. Meanwhile, the Demir and Souldatos [57] study revealed that students who started their homework earlier performed higher on the final exam. However, they were unlucky because they could not reflect on their homework performance on the final examination. According to Liu et al. [59], the conclusions of this study are further corroborated by their findings that students' on-task behaviors tended to decrease as the learning length rose. In contrast, while off-task behaviors tended to rise when students interacted with personal devices. Using personal devices appears to be becoming more appealing to human attention in this digitalization era, which is true even in academic tasks such as research. Despite distractions such as emailing, surfing the web, using social media, instant messaging, and playing games [60], Beserra et al. [61] study demonstrated mastering mathematics with an instructional drill-and-practice video game reduced time on task.

Thus, the implication is consistent with the study's findings that to establish student persistence in an online learning environment, if students do not exhibit behaviors such as practical help-seeking, increased task involvement, and reasoning during academic activities, this factor is critical. The duration of time spent on an activity should be reconsidered, especially in today's world, where it is so easy to use technology and its applications to quickly obtain information and discover shortcuts. As a result, discussing time allocation and optimization in online academic activities becomes less relevant. Moreover, some students, including those who use the elaboration strategy, are usually close to the habit of working on it at the last minute, such that only effort regulation was found to reduce

last-minute homework submissions. At the same time, time management had no effect [37]. In other words, students frequently maximize their time allocation at the last minute, and Prat and Code [62] conclude that this is due to delays and irritation associated with confronting a succession of unsolvable problems and cannot support the persistence factor. Learning can take longer at times, and without completion, the cognitive burden continues to build, reflecting a reality dangerously close to learning loss.

3.2. Two Pathways for the Task completion Model

As seen in Figure 1, the structural model that shapes task completion comprises two paths of self-awareness separated by self-orientation and feeling an obligation, both of which have a substantial effect. Self-awareness as a self-orientation composition that aids task accomplishment is the first path. At the same time, the second way is self-awareness as an experienced duty composition that aids job performance. The finding of the first pathway is supported by the study framework developed by Kalebić Jakupčević et al. [63]. It demonstrates that task-oriented students typically exhibit superior performance and deep processing strategies, in which the awareness function is used for metacognitive control and task adaptation. Certain. The framework is pertinent to assisting students in developing an understanding of their ability to accomplish goals and boost pleasure by engaging perfectionists in the discourse of academic resilience [64]. Then, as El Mrabet and Ait Moussa [65] discovered, self-awareness can assist students in providing the appropriate orientation and is superior to standard counseling methods, which is similar to a rationalization for humans (students) are idealistic beings. Students who are conscious of their mission are more likely to persist through completion; in fact, the awareness, scope, and strength of that purpose might influence a person's developmental results [66].

Additionally, Ferreira et al. [67] state that awareness of how to learn more efficiently through goal-setting can result in autonomous learning. Moreover, autonomous learners are typically the most successful learners because they act consciously to comprehend what they are doing through various strategies to plan, monitor, and evaluate their learning. Students aware of the academic activities' objectives are more oriented because they are motivated by meta-goals. They continue to monitor and evaluate the likelihood of success in achieving that goal, whereas students who believe their actions will be ineffective adapt to fit the situation [66], [68]. Thus, students determine their orientation following their awareness of their current situation while engaging in academic activities. Regarding the study's findings on the second path, the felt obligation factor on students, particularly in education, has received little attention. Most research has focused on employee engagement in the workplace. However, researchers found relevant research that these factors are explained in conjunction with orientation. Thus, the felt obligation factor opens up possibilities for further investigation because similar situations exist where student engagement in online learning cannot always be directly monitored and evaluated. The results of their actions cannot always be ascertained as genuine evidence of their involvement. According to the notion, self-awareness is a powerful motivator that fosters discipline, accountability, and dedication and instills a sense of obligation [2].

In addition, awareness can take the shape of the responsibility to fulfill an obligation, and individuals struggle to do so [69]. While Malhotra et al. [41] discovered that perceived responsibility is a significant element influencing emotional commitment, Lew [70] exhibits affective commitment by creating superior learning experiences and developing self-reputation. On the other hand, while performing tasks out of responsibility, the primary objective is to accomplish the activity as quickly as possible [71]. The relationship between self-awareness, perceived obligation, and effort required to complete the activity becomes apparent here. This finding is consistent with Milsom and Coughlin's [72] finding that when some students realized they were dissatisfied with their major, they felt compelled to complete it for one reason. However, after receiving academic guidance focused on career and self-exploration and identification and reflection, their self-awareness develops to the point where they can complete their majors and pursue careers that align with personal goals.

Task completion is a persistence comprised of self-orientation and felt duty elements, both of which are derived from self-awareness. Students feel obligated to contribute and create their contributions due to being exposed to a powerful atmosphere for learning [73]. The perceived obligation also plays a role in recovering the desire to engage more intensively in academic pursuits by increasing performance efforts further when specified goals are not met [41]. Students with a strong sense of obligation will be more persistent in adapting to changing conditions, as they are aware of the consequences of not improving performance. It is a desire to react and do whatever is necessary

to accomplish goals associated with perceived obligations [74] and a commitment to creating new and resolving existing problems associated with perceived obligations [42]. Thus, online learning is not just about time spent in front of a screen. Students must be aware of and be self-regulated learners to optimize the process and gain learning experiences, including through assigned activities or assignments, such as project- or problem-based learning. In the context of this investigation, understanding the need to mitigate learning loss is critical. As Simal et al. [2] state, students' self-awareness to prevent learning loss includes an awareness of the value of education and the changes that occur during the learning process. While the study findings indicate that learning loss is unlikely to occur due to changes in learning modes or environments, one of them is determined by students' self-awareness as learners.

4. Conclusion

The research confirms that students' cognitive and affective engagement is on track, as evidenced by their task persistence, which can be verified by analyzing their effort and performance during the completion of online academic activity. As the cornerstone for orientation and commitment, self-awareness is the beginning point for assessing effort and performance. This study paves the way for future research into further findings that emphasize the need to arrange and utilize time for academic activities during pre-class to educate and promote students' persistence. Time on task for work can result in mediocre performance if students do not put in sufficient effort and are subjected to rigorous examinations. Moreover, persistence strongly influences both cognitive and affective engagement. Meanwhile, task completion increases persistence but not time spent on the task. Academic engagement for task completion derives from self-awareness as a source of orientation and obligation. Time on the task in a pre-class situation can result in low-quality work if students do not display increased effort and evaluation when confronted with unsolvable assignments. Academic online activities are not limited to budgeting and maximizing time spent in virtual online places. Students must be aware of and required to develop self-regulation to boost their efforts and acquire learning experiences, mainly through activities or assignments offered as projects or problem-based learning. In contrast, this study's findings offer teachers a new challenge: crafting an engaging lesson plan that considers emotional intelligence aspects and self-regulated learning during the pre-class condition.

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