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## Assessing Students' Perceived Engagement in Task-Based Activities in a Blended EFL Learning Environment

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### Abstract

*This study aims to evaluate students' perceptions of engagement with EFL (English as Foreign Language) blended learning tasks based on four factors: task timeliness, task richness, task accuracy, and task adaptability. The study is a Quantitative Survey using questionnaire and the data was processed using SEM-PLS. All the participants are sophomores coming from four universities in Shandong, China. They received an English course using task-based teaching method in blended learning environment. The instructors designated online and offline learning tasks, that's to say, the instructors assigned tasks to the students before class, in class and after class. At the same time, the instructors evaluated the students' task completion and provided feedback on their performance. At the conclusion of the semester, a questionnaire was administered to assess students' perceptions of engagement with these tasks. The findings show that students in an EFL blended learning environment had a positive attitude towards tasks. The study emphasizes the need for intricately designed tasks that are timely, rich, accurate, and adaptable. And instructors' timely assessment and feedback on students' task completion can increase students' engagement in tasks and enhance the effectiveness of EFL blended learning.*

**Introduction:** Presently, blended learning is extensively adopted in EFL (English as Foreign Language) blended learning environments in which students are assigned learning tasks. However, the efficiency of the employed tasks may not fulfil the intended purpose. This study seeks to evaluate students' perceptions of engagement with blended learning tasks based on four factors: task timeliness, task richness, task accuracy, and task adaptability.

**Methodology:** This study is a quantitative survey using questionnaire and the data was processed using SEM-PLS. All the participants are sophomores from four universities in Shandong, China. These four universities included first-rate universities and common universities. All the participants were sophomores and non-English majors whose disciplines included science and arts. The students received an English course using a task-based instructional model in blended learning environment. The instructors designated online and offline learning tasks to the students, that's to say, the instructors assigned tasks before class, in class, and after class. At the same time, the instructors evaluated the students' task completion and provided feedback on their performance. At the conclusion of the semester, a questionnaire was administered to assess students' perceptions of engagement with these tasks. The survey items in the questionnaire are adapted from past research and are regulated based on Lan and Sie's scale (Lan & Sie, 2020). They are specific to this study and used to measure the constructs of the model in this study. The survey items are measured based on a 5-point Likert scaling ranging from 1 (strongly disagree) to 5 (strongly agree). 5-point Likert scale is used to help in establishing the reliability and validity of the data (Hair et al., 2014).

Totally, there were 255 questionnaires were collected and the data was processed by SEM-PLS. Students in an EFL integrated learning environment had a positive attitude towards tasks, according to the findings of the study.

**Results and discussion/Themes and findings:** The study emphasized the need for intricately designed tasks that are timely, rich, accurate, and adaptable. And instructors' timely assessment and feedback on students' task completion can increase students' engagement in tasks and enhance the effectiveness of EFL blended learning.

**Conclusion and/or recommendations:** Relevant implications and suggestions are proposed to help in enhancing the level of learning engagement under blended learning environment of the students.

### **Keywords**

*Blended learning, PLS-SEM, task-based learning, timeliness of task, richness of task, accuracy of task, adaptability of task, Students' perceived engagement (SPE)*

## **1. Introduction**

During the time of pandemics, tasks of blended learning will be assigned to the learners via blended learning environment. However, the effectiveness of the use of tasks might not serve the purpose. In blended learning environment, students could involve in a class taught or directed by a teacher in a face-to-face classroom setting and complete online learning component of the course independently, outside of the classroom through online platform (Sriwichai, 2020). There are two main delivery modes of learning in the blended learning approach: face-to-face classroom learning and online-based learning experience. Hence, blended learning can refer to an incorporation of online learning tools and activities into face-to-face classroom instruction (Sriwichai, 2020). Having grabbed the meaning of blended learning environment set for English learning, it is essential to reflect out if the tasks given for English learning has actually served their purposes. Feedback and perceptions from the learners are vital. Hence the study in this article has evaluated students' perceived engagement in the tasks designed for blended learning from the perspective of timeliness of task, richness of task, accuracy of task and adaptability of task.

## **2. Literature review**

Framing students' engagement in blended learning environment requires the understanding of the mechanisms of students' success in blended learning environment (Kahu, 2013; Kahu & Nelson, 2018). These areas of understanding would certainly cover the understanding of tasks given under the blended learning environment in supporting learning. Measuring students' engagement in technology mediated learning such as blended learning is thus called for (Henrie et al, 2015). The relevance of tasks which affects perceptions on learning engagement is therefore should not be ignored.

Timeliness of tasks is defined as the timely arrangement of learning tasks provided in the blended learning environment. It is vital as it affects the positive learning experience through the timely learning contents provided to the learners (Wang & Wang, 2018). Once the students are convinced

that the learning contents provided is timely and can enhance their learning, they will be keen to involve in all the tasks assigned to them.

The diversity of learning tasks is the key component that represents the richness of tasks given in the blended learning environment (Prasetya et al, 2020). To promote engagement in blended learning among the learners, the richness of tasks should not be overlooked. This is due to the fact that students might be bored in doing monotonous, repetitive and unchallenged tasks.

Additionally, the accuracy of tasks is often related to the suitability in development of language skills designed for the courses (Brudermann et al, 2021). The impact of the tasks with high accuracy will bring about good performance in language learning as well as allowing learner autonomy for self-improvement. Fostering language skills are the ultimate priority for setting tasks with high accuracy (Yang & Kuo, 2021). Tasks that are contributing to the deepening and widening the understanding of the learning contents are having no issues of getting the engagement and involvement of students. However, tasks that are deemed to be irrelevant or insignificant to the learning contents are often having problems and issues of learning engagement.

The purpose of having task adaptability is to investigate the diversity in need during the learning process. The role of learning analytics is required in suiting the adaptability of tasks for learners of various levels of capability and competencies (Tempelaar, 2020). Morze et al (2021) has suggested that adaptability of task need to start with the determination of learning results by getting to know students learning needs. Choices of learning tasks will be provided. These tasks should suit the learning needs. The in-class learning tasks are conducted in fulfilling of learning needs. The learning tasks provided should be monitored as to check if they serve learning purposes for enhancing learning performance and achievement. Therefore, it is essential for having adequate communication between the instructor and learners as this will assist the instructor to be flexible and adaptive to the learning needs of the students.

### **3. Statement of problem**

In teaching practice, the effectiveness of the use of learning activities might not serve the purpose. Study showed that students' engagement in these activities is often lower than expected and some students cannot effectively carry out autonomous learning before class, which makes it difficult to promote classroom activities. Further lead to the lower performing classroom (Zhang, 2019). And the lower students' engagement influences the effect of EFL blended learning. Teachers even need to explain the content of autonomous learning before class repeatedly in class, thus makes blended learning ineffective, and finally become "pseudo blended learning" and make the blended learning ineffective (Chen, 2019). Gradually, the students' achievement will be lower and lower.

#### **4. Objective**

The study aims to investigate the effects of timeliness of task (TT), richness of task (RT), accuracy of task (AT) and adaptability of task (ADT) on students' perceived engagement (SPE). At the same time, socio-demographic characters including gender, school type, discipline, and student number size as moderators on students' engagement will be investigated.

RO1: To investigate the effect of timeliness of task (TT) on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

RO2: To investigate the effect of richness of task (RT) on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

RO3: To investigate the effect of accuracy of task (AT) on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

RO4: To investigate the effect of adaptability of task (ADT) on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

RO5: To investigate the moderating effects of Socio-demographic characteristics on the proposed model in this study

#### **5. Research question**

There are five research questions in this study:

RQ1.Does the timelessness of task (TT) affect the students' perceived engagement (SPE) in EFL task-based activities in blended learning environment?

RQ2.Does the richness of task (RT) affect the students' perceived engagement (SPE) in EFL task-based activities in blended learning environment?

RQ3.Does the accuracy of task (AT) affect the students' perceived engagement (SPE) in EFL task-based activities in blended learning environment?

RQ4.Does the adaptability of task (ADT) affect the students' perceived engagement (SPE) in EFL task-based activities in blended learning environment?

RQ5.What are the moderating effects of socio-demographic characteristics on the proposed model in this study?

#### **6. Hypothesis**

In sum, there are four research hypotheses in this study. They are:

H1: The timeliness of task (TT) will have a significant positive effect on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

H2: The richness of task (RT) will have a significant positive effect on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

H3: The accuracy of task (AT) will have a significant positive effect on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

H4: The adaptability of task (ADT) will have a significant positive effect on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

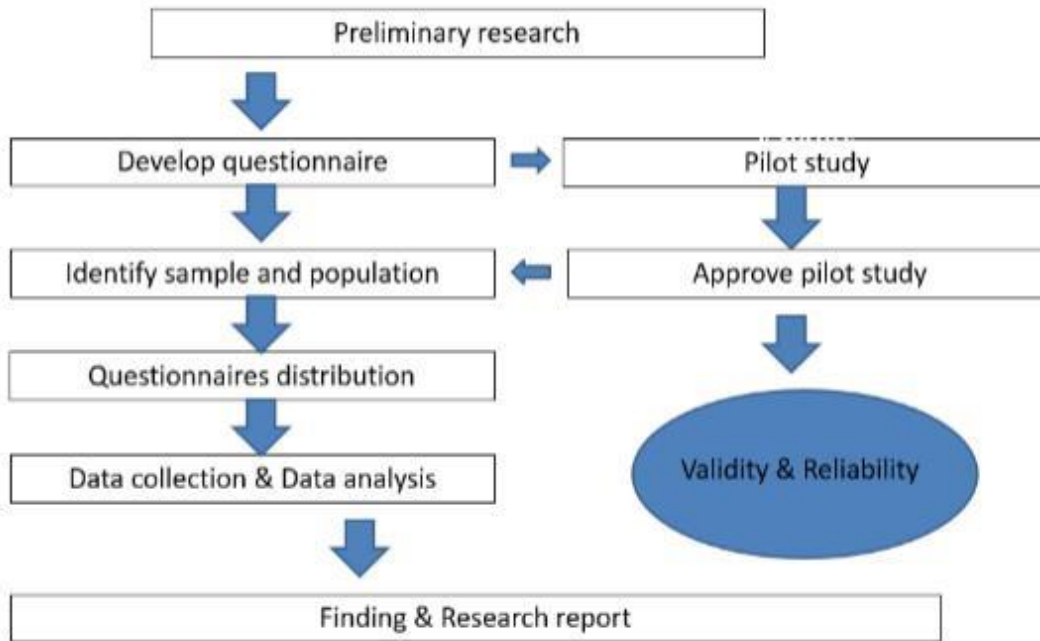
## **7. Methodology**

This study is a quantitative survey using questionnaire and the data was processed using SEM-PLS. All the participants are sophomores from four universities in Shandong, China. These four universities included first-rate universities and common universities. All the participants were sophomores and non-English majors whose disciplines included science and arts. The students received an English course using a task-based instructional model in blended learning environment. The instructors designated online and offline learning tasks to the students, that's to say, the instructors assigned tasks before class, in class, and after class. At the same time, the instructors evaluated the students' task completion and provided feedback on their performance. At the conclusion of the semester, a questionnaire was administered to assess students' perceptions of engagement with these tasks. The survey items in the questionnaire are adapted from past research and are regulated based on Lan and Sie's scale (Lan & Sie, 2020). They are specific to this study and used to measure the constructs of the model in this study. The survey items are measured based on a 5-point Likert scaling ranging from 1 (strongly disagree) to 5 (strongly agree). 5-point Likert scale is used to help in establishing the reliability and validity of the data (Hair et al., 2014).

Before the survey, this study carried out a pilot study. 40 participants from the four universities had answered questionnaires. The Cronbach's alpha is 0.989 ( $>0.7$ ), which indicates that there is a high level of internal consistency for the scale.

Totally, there were 255 questionnaires were collected and the data was processed by SEM-PLS.

The research process was shown in Figure 1 below.



**Figure 1.** Research process

Source: Developed for this research

A-priori Sample Size Calculator is a viable tool for sample size estimation for structural equation models (Soper, 2020). The sampling process of this study is shown in Figure 2 below. The sample calculator of Daniel Soper can be accessed at <https://www.danielsoper.com/statcalc/calculator.aspx?id=89>. The sampling result was also shown in Figure 2. In fact, a total of 255 qualified questionnaires were collected in this study which were more than the recommended minimum sample size.

Anticipated effect size:  ?  
 Desired statistical power level:  ?  
 Number of latent variables:  ?  
 Number of observed variables:  ?  
 Probability level:  ?

Minimum sample size to detect effect: 150  
 Minimum sample size for model structure: 148  
 Recommended minimum sample size: 150

**Figure 2.** Sampling result

Source: Developed for this research

The survey items that are used to measure the constructs of the model in this study are included below in Table 1 below. Table 2 shows the Cronbach’s Alpha value if item deleted. All values are above 0.7 indicating higher and stronger reliability indices. The reliability indices for all dimensions were above 0.7 and below 0.95. Even though there are two values which are slightly high than 0.95. As a whole, they are accepted. Thus, no issues of multi collinearity and auto collinearity occurred. This instrument is suitable for PLS-SEM analysis later in this study.

**Table 1.** Items in the Instrument of This Study

Item number	Item	Reference
Dv	Students’ perceived engagement	Lan & Sie (2010)
1	I’m actively engaged in completing tasks.	
2	I’d like to take part in task-based learning activities.	
3	I think that actively completing these tasks facilitates my study.	
4	I think that these task-based activities are important.	
Iv 1	Timeliness of task	



5	When instructor posts a class announcement the tasks I should do, I can receive the message immediately.
6	When peer replies a discussion topic on the tasks, I can receive the replied message automatically.
7	I can regularly acquire the reports of learning status from the learning system on the tasks that I am doing.
8	Overall, I think that the tasks I am doing are timely.
Iv 2	Richness of task
9	I think that the tasks I am doing are rich in contents
10	The tasks consist of text and various media types to describe a learning activity that I should do.
11	Overall, I find that the tasks involve various media types (e.g., text, image, sound, or animation).
Iv 3	Accuracy of task
12	I think that the tasks are clear.
13	I can easily understand the tasks I should do.
14	Overall, I think that the tasks are explicit and easy to understand to support my learning.
Iv 4	Adaptability of task
15	I think that the tasks are presented in different viewing modes to reveal the difference of specific subject.
16	I think that the feedbacks of the tasks are demonstrated in different results based on same subject.
17	Overall, I think that the tasks given are adapted to my learning abilities.

Source: Developed for this research

**Table 2.** Reliability Indices of the Dimensions

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted



DVM (SPEM)	15.5078	14.161	.951	.905	.924
IV1M (TTM)	15.6549	14.942	.867	.776	.939
IV2M (RTM)	15.6124	14.998	.802	.703	.951
IV3M (ATM)	15.6595	15.286	.853	.763	.941
IV4M (ADTM)	15.6124	15.065	.852	.905	.941

Source: Developed for this research

## 8. Descriptive statistics

Table 3 provides some information about the demographics of the participants, which was calculated using SPSS. No missing values were found for this study.

Table 3 gives some information about the demographics of the participants, respectively calculated in SPSS 23. The participants were from four universities in Shandong, China. The types of universities included comprehensive universities and professional universities, with participants majoring in arts and science.

**Table 3.** Demographic Information of the Study

Gender	Frequency	Percentage
Female	128	50.2
Male	127	49.8
School type		
Comprehensive	125	49
Professional	130	51
Discipline		
Arts	124	48.6
Science	131	51.4

Number of classmates		
≤60	126	49.4
>60	129	50.6

Source: Developed for this research

## 9. Outer loadings

Table 4 below depicts the measurement model of this study. In this research, the factor outer loadings between items and their underlying constructs calculated by Smart-PLS version 3 showed that each item had an indicator loading that was greater than 0.707 and with significant value smaller than 0.050. As shown in table 4 below, all of the factor loadings of the items to corresponding constructs are above 0.7 and significant (p-value < 0.05) which are excellent. Hence, the measurement model has indicator reliability.

**Table 4.** The Model with Outer Loadings

Indicators	TT	RT	AT	ADT	SPE	P Values
TT1	0.940					0.000
TT2	0.935					0.000
TT3	0.921					0.000
TT4	0.926					0.000
RT1		0.946				0.000
RT2		0.949				0.000
RT3		0.946				0.000
AT1			0.945			0.000
AT2			0.947			0.000
AT3			0.936			0.000
ADT1				0.930		0.000
ADT2				0.940		0.000
ADT3				0.947		0.000
SPE1					0.921	0.000
SPE2					0.937	0.000
SPE3					0.935	0.000
SPE4					0.934	0.000

Source: Developed for this research

## 10. Construct internal consistency

Besides, construct internal consistency reliability is an indicator of how well and to what extent the indicators of one construct measure that construct (Herzog & Tonchia, 2014). In other words, construct internal consistency shows that the items are measuring the same thing. Cronbach's alpha is a measure used to assess the internal consistency or internal reliability of a set of scales or test items (calculated in Smart-PLS version 3 in this study). In the other words, the reliability of any

given measurement refers to the extent to which it is a consistent measure of a concept, and Cronbach's alpha is one way of measuring the strength of that consistency (Urbach & Ahlemann, 2010). The higher amount of  $\alpha$  indicates the items have more shared covariance and probably measure the same underlying concept. According to Gefen et al. (2011), in order to check internal consistency, the value of Cronbach's  $\alpha$  statistics for exploratory research should be more than 0.6 and for confirmatory research (i.e., CFA) should be more than 0.7. In addition, in CFA and SEM, internal consistency can be checked by composite reliability (CR) and should be more than 0.7 (Urbach & Ahlemann, 2010). The values of Cronbach's  $\alpha$  and CRs are shown in Table 5. As shown in Table 5, all values of Cronbach's  $\alpha$  and CRs are greater than 0.7 so the measurement model has internal consistency reliability.

**Table 5.** The Results of Internal Consistency Reliability and Convergent Validity Analysis

	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
SPE	0.949	0.963	0.866
TT	0.948	0.963	0.896
RT	0.942	0.963	0.889
AT	0.938	0.960	0.881
ADT	0.933	0.957	0.868

Source: Developed for this research

## 11. Assessment of Structural Model

Table 6 below shows the Assessment of Structural Model of this study. According to Table 6 below, the path coefficients between all constructs are significant ( $p$ -value < 0.01). The results show that all the independent variables (timeliness of task, richness of task, accuracy of task and adaptability of task) have significant and positive effect on dependent variable (students' perceived engagement).

**Table 6.** Assessment of Structural Model: Path coefficients between all construct

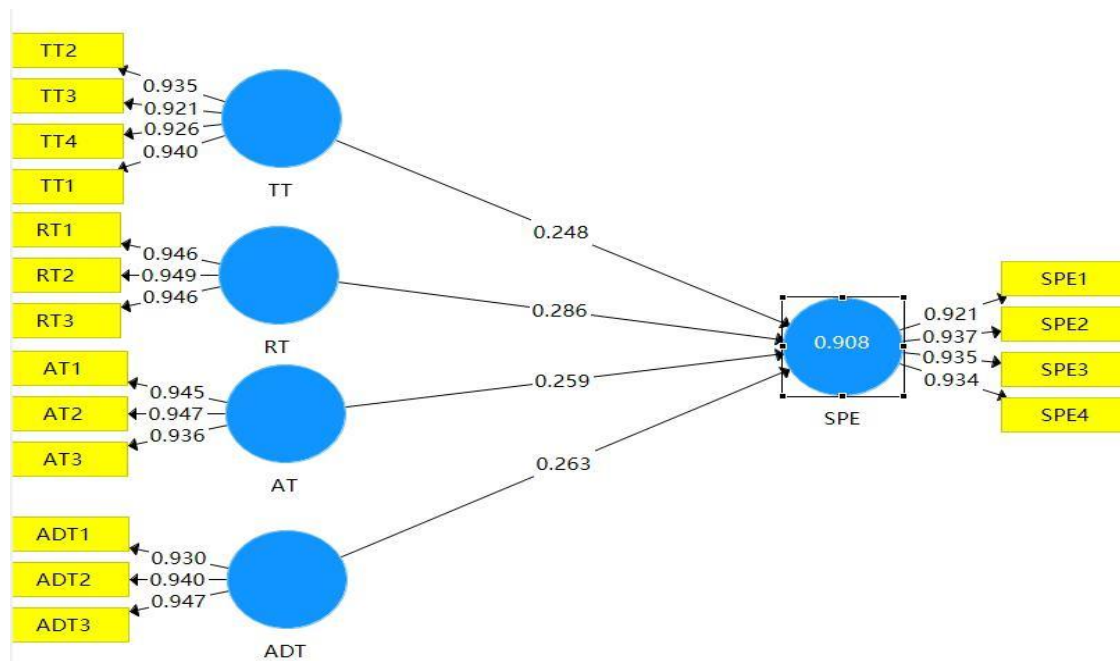
	Path Coefficients	P Values	Explained Variance (R2)
TT -> SPE	0.248	0.000	0.908
RT -> SPE	0.286	0.000	
AT -> SPE	0.259	0.000	
ADT -> SPE	0.263	0.000	

Source: Developed for this research

## 12. Graphic Representation of the Model

Besides, Figure 3 below and Table 6 above show the explained variance of all the constructs ( $r$  square is equal to 0.908 which means 90.8% of the variance in the dependent variable construct can be explained by its predictors which shows all the independent variables, including timeliness of task, richness of task, accuracy of task and adaptability of task are having a substantial effect on

the dependent variable in this study, namely students' perceived engagement). And the Path Coefficient of TT to SPE is 0.248, RT to SPE is 0.286, AT to SPE is 0.259 as well as ADT to SPE is 0.263.



**Figure 3.** The Graphic Representation of the Model with Path Coefficients, and Explained Variance

Source: Developed for this research

### 13. Hypotheses Testing

With the confirmation of Structural Model assessment results and the high value of r square as shown in Figure 4 and Table 6 above, hypotheses testing of this study can be carried out. Table 7 below shows the major findings on the hypotheses testing of this study.

**Table 7.** Hypotheses Testing

Hypothesis	Relationships	T value	P values	Decision	95% CILL	95% CIUL
H1	TT -> SPE	5.118	0.000	Accepted	0.156	0.347
H2	RT -> SPE	7.468	0.000	Accepted	0.215	0.364
H3	AT -> SPE	6.268	0.000	Accepted	0.180	0.341
H4	ADT -> SPE	6.554	0.000	Accepted	0.187	0.343

Source: Developed for this research

For hypothesis 1, t value is 5.118. The significant value is between 95% CI LL and 95%CI UL. Hence, the hypothesis 1 is accepted. For hypothesis 2, t value is 7.468. The significant value is between 95% CI LL and 95%CI UL. Hence, the hypothesis 2 is accepted. For hypothesis 3, t value is 6.268. The significant value is between 95% CI LL and 95%CI UL. Hence, the hypothesis 3 is accepted. For hypothesis 4, t value is 6.554. The significant value is between 95% CI LL and 95%CI UL. Hence, the hypothesis 4 is accepted. The results of the study highlighted the positive relationships of the students towards tasks in blended learning courses. As such, the four hypotheses confirmed in this study were:

1: The timeliness of task (TT) has a significant positive effect on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

2: The richness of task (RT) has a significant positive effect on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

3: The accuracy of task (AT) has a significant positive effect on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

H4: The adaptability of task (ADT) has a significant positive effect on students' perceived engagement (SPE) in EFL task-based activities in blended learning environment.

## **9. Discussion and conclusion**

The study stressed the requirements for elaborately-designed tasks with the quality of timeliness, richness, accuracy and adaptability. At the same time, timely feedback on the completion of tasks and practical assessment methods to measure students' attributes facilitate the effectiveness of blended learning. Student engagement and learner autonomy also benefit from the blended learning course.

Current study intensifies comprehension of dependent variable of this study, namely students' perceived engagement (SPE) in blended learning environment by four independent variables which include timeliness of task (TT), richness of task (RT), accuracy of task (AT) and adaptability of task (ADT). Findings emphasize pivotal role of task arrangement of instructors in ensuring student's engagement in these tasks in blended learning environment.

Timely-assigned and timely-completed tasks after learning new knowledge and skills would help the students further enhance their understanding of what they have learned and exercise their ability while completing the tasks. As pointed out by Rop et al (2018), timely tasks shouldn't include any irrelevant information or unsupportive learning materials. Teachers should provide details in guiding the students in completing the tasks. If not, the students would not be positively involved in the tasks assigned by the instructors.

Tasks rich in forms and contents would arouse the students' interest to complete the tasks. Researchers also observed that respondents would engage in tasks that with richness in contents. As highlighted by Prasetya et al, (2020), the richness of tasks should encompass the following

contents, which has the following main structure: 1. Basic learning tasks, 2. Tasks for revision purposes, 3. Tasks for enrichment, 4. Tasks for remedial purposes, and 5. Interactive learning tasks. Richness of tasks should come together with the purposes in giving and presenting the tasks to the learners in accordance to the learning contents and learning objectives of the course. Richness without boundaries and purpose are tasks done in vain and would not serve the learning objectives of the course. By having a richness of tasks, students with various needs will be benefited by carrying the tasks that suit their needs.

To ensure active engagement in tasks assigned in blended learning environment, the accuracy of tasks must be taken care of. The impact of the tasks with high accuracy will bring about good performance in language learning as well as allowing learner autonomy for self-improvement (Wang, 2021). Therefore, the tasks assigned in blended learning environment should be able to bring about the results in heightening the knowledge of the course, improving the performance in assessment as well as improving the language skills and not just for the sake of carrying tasks for killing time alone.

On top of these, adaptability of task in affecting positive engagement has been confirmed vital in this study. The crucial concept in the support of students is feedback as mentioned by Pardo (2018). Instructors must find way in providing feedback of study and learning to the learners. The blended learning platform should also include features in ensuring channel of feedback is smoothly maintained and carried out.

Assessment on students' completion of tasks was carried out online and offline in this study. Formative assessment was given on each task completed by the students and finally formed the performance evaluation throughout the semester. Timely assessment and feedback from the instructors on the students' completion of tasks would help the students grasp new knowledge. At the same time the instructors' positive feedback would make the students feel the teacher's concern, which would also become the motivation for them to further study. Learning tasks with the quality of timeliness, richness, accuracy, and adaptability could help the students engage in learning, have a command of target language step by step and gradually establish a sense of learning rhythm, thus facilitating the effectiveness of blended learning as well as promoting the students' learning autonomy.

In order to ensure students' perceived engagement (SPE) in blended learning environment, these four factors timeliness of task (TT), richness of task (RT), accuracy of task (AT) and adaptability of task (ADT) should be attended carefully. Table 8 below shows some ideas on which these can be taken care of in a blended learning environment.

**Table 8.** Attending Engagement of Learning Tasks in Blended Learning Environment

<b>Adapting of tasks in blended learning environment.</b>	<b>Option</b>	<b>Factor taken care of</b>	<b>Setting: blended learning environment</b>
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1	Explain the timeline for task completion	Timeliness of task	Face to face
2	Using breakout rooms for group discussion with tasks in richness of learning contents.  The good students may assist the poor students.  Good students may engage in enriching learning tasks.  Poor students may engage in revision learning tasks.	Richness of task	Online distant learning environment
3	Students may assign in completing tasks in collaborative manner, such as using Google Docs and etc.  These are to ensure that the students are engaged in doing tasks that assist them in achieving of certain learning outcomes	Accuracy of task	Online distant learning environment
4	Students back to work on individual task.  Individual feedbacks on learning tasks are given.	Adaptability of task.	Face to face

Source: Developed for this research

There are some limitations in this study and some future suggestions are proposed in tackling these limitations. Similar as prior studies, current study also prone with some limitations. First, data collected through convenience sampling method which might be restrict generalizability of results. For future studies, large samples and with stratified sampling method can be employed to increase the generalizability of the findings.



Second, there were only four factors involved only in this study. For future studies, more determinants can be added in producing a more fruitful understanding for developing a better and comprehensive model which includes a multitude of factors in determining the effectiveness of active engagement in blended learning environment.

Third, current study taken only the effects of four selected independent variables on the dependent variable. Moderators and mediators that will affect the relationships studied in this study should be considered for future studies in order to yield greater understanding on the effects of these moderators and mediators on the relationships studied.

Fourth, this study employed traditional method of PLS-SEM in the assessment process. Future study should employ other more advanced techniques in PLS-SEM analysis, such as assessing the common method variance (construct level correction), using multi-group analysis (MGA) in evaluating the moderating factors effecting the relationships.

In conclusion, this study has confirmed that students' perceived engagement (SPE) in blended learning environment can be affected by four independent variables which include timeliness of task (TT), richness of task (RT), accuracy of task (AT) and adaptability of task (ADT). Thus, instructors have to ensure that the tasks assigned to the learners have to be adhered to these four vital factors as to ensure positive engagement in the learning tasks that eventually produce effective learning outcomes.

#### **14. Acknowledgments**

I show my greatest gratitude to my doctoral supervisor Dr. Goh Ying Soon. Dr. Goh's rigorous academic attitude and diligent research spirit have always inspired me in the process of learning. The thesis was completed under the guidance of Dr. Goh on conception, completion and the application of scientific research method. His careful guidance and generous encouragement help me to make further progress in the path of academic research.

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