

Research Article

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Author for correspondence:

Tra-My Thi Ly

✉ [lttmy@ctump.edu.vn](mailto:lttmy@ctump.edu.vn)

✉ Affiliations:

Can Tho University

Can Tho University of Medicine and Pharmacy



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# Strengthening Students' Well-being via Intervening PERMA-based Lessons in Their English Speaking Learning: A Counterbalanced Design

Tra-My Thi Ly , Huan Buu Nguyen 

## Abstract

**Background.** Although the Positive emotion, Engagement, Relationship, Meaning in life and Accomplishment (PERMA) model and students' well-being have been growing concerns in English language teaching (ELT) in recent years, experimental research in ELT examining the effects and mutual relationship of these two concepts on student learning remains scarce. As a part of a larger project, this study, therefore, explored the impact of PERMA-based speaking lessons in English for Medical Purposes (EMP) courses on students' well-being. The results were expected to contribute to enriching the existing literature and shed light on the effects of the PERMA model in ELT.

**Methods.** The study employed a counterbalanced experimental design. Data were collected from two participant groups: 38 General Medicine students (Group 1) and 41 Odonto-Stomatology students (Group 2), who received the intervention program at two different intervals. A questionnaire administered before and after each intervention phase served as the primary data collection tool. The data were analyzed using the Repeated Measures Analysis of Variance (ANOVA) test by SPSS, version 22.

**Results.** The findings indicate that the PERMA-based speaking lessons enhanced students' well-being while reducing their negative feelings during English speaking activities, though more analysis is needed to be done to understand the effects of the PERMA-based lessons on the changes in students' negative feelings.

**Conclusion.** The PERMA-based lessons have a positive influence on students' learning in English speaking classes. Therefore, the multiplication of this model application in ELT can help boost students' learning well-being and thus be beneficial for students' development.

## 1. Introduction

Over the past few decades, the PERMA model has gained increased attention in English language teaching (ELT), particularly when used as an approach to enhancing students' well-being (e.g., Seligman, 2002, 2011; Seligman & Csikszentmihalyi, 2000). However, a review of existing literature reveals that, while numerous qualitative studies have explored how well-being and the PERMA model manifest in both teachers and students, relatively few experimental studies have examined its effects on students' English learning, particularly English-speaking skills. To date, three studies have investigated the application of the PERMA model in ELT. For example, Dong (2021) explored the structural relationships between the PERMA model and factors such as English learning, interest, confidence, and communicative competence while also assessing the effects of the PERMA interventions on elementary students' affective domains and communication skills. Similarly, Cheng and Chen (2021) examined how the PERMA model influenced college students' English listening and speaking proficiency. Additionally, Jeon (2021) focused on the effects of a positive psychology intervention (PPI) on young EFL learners' speaking fluency, engagement, and emotional well-being.

In the Vietnamese context, several studies have addressed well-being in education. For example, Dinh and Le (2022) examined factors influencing student well-being at Da Nang Architectural University, while Author and Nguyen (2024) described the impact of the PERMA model on students' speaking performance. Nguyen (2021) focused on financial well-being among Vietnamese students, and Tong (2022) identified various factors influencing students' English-speaking performance. Notably, these studies were descriptive in nature, and no experimental research on the PERMA model in ELT has been identified.

To bridge this gap, the present study aimed to measure the effects of an intervention program grounded in the PERMA model and ELT teaching and learning principles on students' well-being. In other words, the study sought to answer the question, 'How can students' well-being be strengthened with PERMA-based speaking lessons?' A counterbalanced design involving two experimental groups was implemented to achieve this objective. The findings were expected to better understand the role of the PERMA model in ELT, introduce a well-being-focused teaching approach, and contribute to addressing the gap in current ELT literature.

## 2. Literature Review

### *2.1. Students' well-being and the PERMA model*

As a key focus of positive psychology- a field of study that addresses individuals' adversities by intervening in their inherent strengths to help them overcome life challenges in a hedonic way (Seligman & Csikszentmihalyi, 2000), well-being is considered by the World Health Organization as a fundamental human right (Mercer, 2021).

In recent years, the term 'well-being' has been a buzzword among researchers, as it represents the ultimate state that most individuals aspire to achieve throughout their lives. For example, Ryan and Deci (2001) highlight hedonic well-being – a type of happiness attained from the achievement of goals or valued outcomes rather than from mere physical pleasure. Likewise, Gale and colleagues (2013) define eudemonic well-being as true happiness stemming from a sense of meaning and self-realization. Apart from these perspectives, numerous well-being constructs –such as psychological well-being, subjective well-being, and social well-being- have been widely discussed (Oades & Mossman, 2017).

Among diverse perspectives of well-being, Seligman and colleagues (2009) provide a structured approach by conceptualizing well-being as a subjective and abstract phenomenon encompassing different dimensions of happiness. To enhance understanding, they propose breaking down the construct into five key elements: positive emotion, engagement, relationship, meaning in life, and

accomplishment- collectively known as the PERMA model. Apparently, individuals can experience a state of well-being by fulfilling one or more of these elements (Seligman, 2009).

In the present study, well-being is conceptualized as a multi-faceted concept represented by five dimensions of the PERMA model. In other words, the most effective way to measure students' well-being is through an evaluation of their PERMA. Given the availability of well-established and accessible assessment tools, examining students' well-being can be conducted with reliability and precision (Macintyre et al., 2019).

### 3. Methodology

#### 3.1. Research question

How can students' well-being be strengthened with PERMA-based speaking lessons?

#### 3.2. Design

A counterbalanced design was chosen to conduct the study. This helps to equate both groups, reduce bias, help the researchers maintain a high level of control over the study, and better understand the results (Creswell and Gutterman, 2018; Fraenkel, Wallen and Hyun, 2012). Table 1 explains the design of the study.

**Table 1.** Counterbalanced design of the study

Group	Phase 1 (15 weeks)		Phase 2 (15 weeks)	
Group 1	Received PERMA intervention lectures	Posttest	Received standard lectures	Posttest
Group 2	Received standard lectures	Posttest	Received PERMA intervention lectures	Posttest

#### 3.3. Research setting

The study was conducted at a university of Medicine and Pharmacy where the researchers had convenient access. The university had eight training programs consisting of General Medicine, Traditional Medicine, Odonto-Stomatology, Preventive Medicine, Pharmacy, Nursing, Public Health, and Medical Techniques. In each training program, English for Medical Purposes (EMP) 1 and 2 were the two compulsory courses that all students had to take. In such courses, the school hoped to develop students' competence in speaking English in specific medical situations and cultivate students' basic knowledge of medical specializations.

The course book used in the courses was Career Paths – Medical, written by Evans, Dooley, and Tran (2019). This published series consisted of three sections. Each section included 15 units (45 units in total) covering different topics related to the medical field. However, in the design of the EMP courses, just 18 units divided into two courses were employed. Specifically, in EMP course 1, nine units, including Hospital Staff, Hospital Equipment, Respiratory System, Circulatory System, Digestive System, Blood, Bones, Nursing, and Surgery, were covered. Meanwhile, in EMP course 2, nine other units, i.e., Skin, Nervous System, Endocrine System, Reproductive System, Urinary System, Talking about Symptoms, Diagnostic Equipment, Administering Medication, and Describing Frequency, were taught. Each EMP course was conducted in 15 weeks. Briefly, the study took place in roughly eight months.

#### 3.4. Participants

Student participants. After receiving the list of the group distributions for the EMP 1 and 2 courses from the Department of Undergraduate Studies of this university, the researcher randomly

picked up two groups from the list. These were one General Medicine group with 38 freshmen and one Odonto-Stomatology group with 41 first-year students.

Lecturer participants. Two lecturers teaching EMP courses were invited to participate in the study. One lecturer taught the PERMA-based speaking lessons, and the other applied her standard lessons. The lecturer participants held their master's degrees in Principles and Approaches to Teaching English to Speakers of Other Languages (TESOL) for more than ten years and had almost the same amount of experience in teaching EMP courses. Table 2 below presents detailed information about the two lecturers.

**Table 2.** Lecturer participants' information

Lecturer	Age	Highest degree	Year granted	Highest degree granted by	Experience of the teaching career	Experience of teaching EMP courses
LHLP	44	MA in TESOL	2008	Can Tho University	18	18
AXS	39	MA in TESOL	2010	Can Tho University	16 years	15 years

### **3.5. Ethical considerations**

Ethical considerations were carefully addressed when conducting the study. First, participants were asked to complete the consent forms before their participation. Moreover, pseudonyms were used in the analysis to ensure confidentiality. Finally, the study obtained approval from the Ethics Committee of Can Tho University of Medicine and Pharmacy under Decision No.319/ĐHYDCT, dated February 6th, 2024.

### **3.6. Instruments**

Throughout the two phases of this study, data were collected using a questionnaire and PERMA-based lessons as intervention tools.

Questionnaire. This questionnaire was designed to examine students' well-being following the intervention program. To develop the questionnaire items, the study adopted the framework proposed by Kern and colleagues (2015), which measures students' well-being based on the PERMA model. In this framework, students' well-being was measured across six dimensions: Positive emotion (13 items), Engagement (6 items), Relationship and Meaning in life (9 items), Accomplishment (6 items), Depression (8 items), and Anxiety (7 items). The questionnaire employed a 0-10 rating scale, where higher scores indicate greater levels of the respective PERMA constructs.

The first section of this survey provided space for students to get a general understanding of the purpose of the study and the confidentiality of their personal information. This contributed to the validity of the questionnaire. Then, a reliability test was run via the SPSS program, version 22, to estimate the internal consistency of the questionnaire. Table 3 illustrates this result.

**Table 3.** Reliability test result of the questionnaire

Section	Dimension	Number of items	Question code	Cronbach's alpha
	Overall	49	1-49	0.95
Well-being	Positive emotion	13	P1-13	0.98
	Engagement	6	EP1-6	0.9
	Relationship and Meaning in life	9	RM1-9	0.97
	Accomplishment	6	AC1-6	0.97
Negative feelings	Depression	8	D1-8	0.97
	Anxiety	7	AN1-7	0.96

In this study, the overall Cronbach's alpha was 0.95, with all given constructs above 0.9. This means that the questionnaire used in this study was highly reliable.

### **3.7. Descriptions of the types of lessons**

#### **General speaking lessons of the courses**

The whole educational program for healthcare majors included two EMP courses. Each course had 09 units about different medical topics. After each unit, there was one speaking task, which usually required students to make conversations between doctors and nurses, doctors and patients, medical professors and students, and nurses and patients about specific healthcare scenarios. Then, these scenarios were used in the final speaking exams.

#### **PERMA-based lessons**

The lessons in this end were composed on the basis of the principles of positive psychology, the PERMA model, and language teaching and learning. Each of them followed a consistent framework and flexible content, depending on the topic in each unit. The framework included three stages. The pre-teaching stage aimed to get the class ready for speaking activities by activating their good feelings and revising previous lessons. This was done by asking them to discuss questions, i.e., 'How's your day today?', 'What did you do well today?', 'What made your day today?', 'How did you prepare for your speaking task?', 'What difficulties did you encounter when you did the task?' 'How did you cope with the difficulties?'. Then, students were invited to perform their conversations about the previous tasks in class. Other students, together with the teacher, listened to them, asked questions, and responded to each other.

In the while-teaching stage, necessary vocabulary items and their pronunciation were introduced to students via videos and pictures and reviewed by games (lucky numbers, crosswords, slap the board). Then, students studied sample conversations for the speaking tasks, analyzing necessary ideas and practicing pronunciation by reading the sample texts with their partners. After that, students worked in groups to discuss guided questions proposed by the teacher. When they finished their group discussion, representatives in some groups presented their ideas to the class while other students listened and asked questions to elicit any points.

In the post-teaching stage, students reflected on what they did in class and prepared their conversations at home.

Eventually, the 18 PERMA-based speaking lessons were officially launched to the students after gaining support from 06 experts who held a good understanding of the PERMA model and taught English speaking as a result of their validation.

### Standard lessons

The relevant vocabulary was presented throughout the units. During the lexical presentation, the teacher provided more terminology for the students. In speaking lessons, the teacher-initiated discussions by posing questions to guide students to the topic. Then, the teacher taught essential vocabulary along with additional technical terms related to the subject. The teacher then elaborated the task requirements and guided students in generating ideas for the conversation. Finally, selected students were invited to answer the teacher's questions on the topic.

### 3.8. Data collection procedures

Prior to the experiment, two groups completed a questionnaire on their well-being and negative feelings. The study was conducted in two phases. In Phase 1, Group 1 served as the experimental group, receiving PERMA-based lessons, while Group 2 followed the standard lessons. Upon completing the course, both groups responded to the same questionnaire. In Phase 2, the roles were reversed: Group 1 received the standard lessons, whereas Group 2 experienced PERMA-based lessons. Finally, both groups completed the questionnaire again.

### 3.9. Data analysis

The data collected through the questionnaire was split into two parts. Part 1 included dimensions that made up students' well-being (e.g., Positive emotion, Engagement, Relationship, Meaning in life, and Accomplishment). Part 2 included two concepts, i.e. Depression and Anxiety, which manifested under the theme 'negative feelings' in the data analysis.

For quantitative data analysis, the SPSS software version 22 was used. Specifically, the Descriptive Test was used to describe the results of each construct in the questionnaire. The Repeated Measures Analysis of Variance (ANOVA) was performed to compare the results within and between groups during the two phases.

## 4. Results

### 4.1. The effects of the intervention program on students' well-being

Table 4. Descriptive statistics on students' well-being

	GROUP	Mean	Std. Deviation	N
PREWELLBEING	1	6.03	2.13	38
	2	6.71	1.56	41
	Total	6.37	2.05	79
WELLBEING1	1	6.86	1.74	38
	2	6.32	2.33	41
	Total	6.59	2.06	79
WELLBEING2	1	6.91	1.82	38
	2	8.16	1.36	41
	Total	7.5	1.73	79

The Descriptive statistics show that Group 1's well-being level was 6.03 (SD=2.13) in the pre-stage, 6.86 (SD=1.74) in Phase 1 and 6.91 (SD=1.82) in Phase 2. Likewise, Group 2's mean scores were 6.71 (SD=1.56) in the pre-stage, 6.32 (SD=2.33) in Phase 1 and 8.16 (SD=1.36) in Phase 2.

**Table 5.** Multivariate tests<sup>a</sup> on students' well-being

Effect		Value	F	Hypothesis df	Error df	Sig.
WELLBEING	Pillai's Trace	0.23	10.79 <sub>b</sub>	2	0.00	0.00
	Wilks' Lambda	0.78	10.79 <sub>b</sub>	2	0.00	0.00
	Hotelling's Trace	0.29	10.79 <sub>b</sub>	2	0.00	0.00
	Roy's Largest Root	0.29	10.79 <sub>b</sub>	2	0.00	0.00
WELLBEING * GROUP	Pillai's Trace	0.25	12.16 <sub>b</sub>	2	0.00	0.00
	Wilks' Lambda	0.75	12.16 <sub>b</sub>	2	0.00	0.00
	Hotelling's Trace	0.33	12.16 <sub>b</sub>	2	0.00	0.00
	Roy's Largest Root	0.33	12.16 <sub>b</sub>	2	0.00	0.00

Table 5 indicates that the lessons had significant effects on students' well-being both within and between the two groups because the p-value was  $0.00 < 0.05$  in all tests.

**Table 6.** Mauchly's test of Sphericity<sup>a</sup> on students' well-being

Measure: MEASURE_1							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon <sup>b</sup>		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
WELLBEING	0.93	5.39	2	0.07	0.93	0.93	5.39

Table 6 presents the results of Mauchly's test of Sphericity on students' well-being. The p-value was  $0.07 > 0.05$ , which gives evidence that the specific results of this test in Table 7 can be used to understand the effects of the types of lessons on students' well-being both within and between the groups.

**Table 7.** Tests of within-subjects effects on students' well-being

Measure: MEASURE_1						
Source		Type III Sum of Squares	df	Mean Square	F	Sig.
WELLBEING	Sphericity Assumed	42.11	2	21.05	8.04	0.00
	Greenhouse-Geisser	42.11	1.87	22.53	8.04	0.00
	Huynh-Feldt	42.11	1.94	21.7	8.04	0.00
	Lower-bound	42.11	1	42.11	8.04	0.01
WELLBEING * GROUP	Sphericity Assumed	61.26	2	30.63	11.7	0.00
	Greenhouse-Geisser	61.26	1.87	32.78	11.7	0.00
	Huynh-Feldt	61.26	1.94	31.57	11.7	0.00
	Lower-bound	61.26	1	61.26	11.7	0.01
Error(WELLBEING)	Sphericity Assumed	392.56	150	2.62		
	Greenhouse-Geisser	392.56	140.16	2.8		
	Huynh-Feldt	392.56	145.5	2.7		
	Lower-bound	392.56	79	5.23		

The Sphericity test in Table 7 shows that the differences in students' well-being both within and between the groups were significant when the p-value in both cases was  $0.00 < 0.05$ .

**Table 8.** Tests of between-subjects effects on students' well-being

Measure: MEASURE_1					
Transformed Variable: Average					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	11196.06	1	11196.06	2192.8	0.00
GROUP	32.08	1	32.08	6.28	0.01
Error	382.94	79	5.11		

Table 8 provides information about the differences in students' well-being between the two groups. The p-value of 0.00 aligns with the results in previous tests, indicating a statistically significant difference in well-being between the two groups.



**Table 9.** Pairwise comparisons between the two groups on their well-being

Measure: MEASURE_1						
(I) GROUP	(J) GROUP	Mean Difference (I-J)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for difference <sup>b</sup>	
					Lower Bound	Upper Bound
1	2	-0.75*	0.3	0.01	-1.34	-0.15
2	1	-0.75*	0.3	0.01	.153	1.34

Table 9 presents the comparison in the mean difference between the two groups. Accordingly, there was a significant difference in students' well-being between the two groups since the  $M=0.75$ ,  $p=0.01 < 0.05$ .

**Table 10.** Pairwise comparisons on students' well-being over phases

Measure: MEASURE_1						
(I) WELLBEING	(J) WELLBEING	Mean Difference (I-J)	Std. Error	Sig. <sup>a</sup>	95% Confidence Interval for Difference <sup>a</sup>	
					Lower Bound	Upper Bound
1	2	0.35	0.29	0.22	-0.22	0.92
	3	-0.68*	0.27	0.01	-1.22	-0.14
2	1	-0.35	0.29	0.22	-0.92	0.22
	3	-1.03*	0.23	0.00	-1.48	-0.58
3	1	0.68*	0.27	0.01	0.14	1.22
	2	1.03*	0.23	0.00	0.58	1.48

Table 10 reveals the specific comparison in the mean difference between the two groups over phases. Specifically, there was no difference in students' well-being after the first phase ( $p=0.22 > 0.05$ ). However, the difference was considerable between Phase 1 and Phase 2 ( $p=0.00 < 0.05$ ).

**Table 11.** Pairwise comparisons of Group 1's well-being

Measure: MEASURE_1						
(I) wellbeinggr1	(J) wellbeinggr1	Mean Difference (I-J)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for Difference <sup>b</sup>	
					Lower Bound	Upper Bound
1	2	-0.83*	0.34	0.02	-1.52	-0.15
	3	-0.88*	0.38	0.03	-1.65	-0.12
2	1	0.83*	0.34	0.02	0.15	1.52
	3	-0.05	0.3	0.87	-0.65	0.55
3	1	0.88*	0.38	0.03	0.12	1.65
	2	0.05	0.3	0.87	-0.55	0.65

Table 11 presents a detailed comparison of the mean difference within Group 1 across different phases. Specifically, the difference in students' well-being in Group 1 before and after Phase 1 was statistically significant ( $p=0.02<0.05$ ). However, the difference between Phase 1 and Phase 2 was not important ( $p=0.87>0.05$ ).

**Table 12.** Pairwise comparisons of Group 2's well-being

Measure: MEASURE_1						
(i) wellbeinggroup2	(j) wellbeinggroup2	Mean Difference (I-J)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for Difference <sup>b</sup>	
					Lower Bound	Upper Bound
1	2	0.39	0.61	0.53	-0.85	1.631
	3	-1.46*	0.53	0.01	-2.53	-0.39
2	1	-0.39	0.61	0.53	-1.63	0.85
	3	-1.85*	0.42	0.00	-2.7	-0.99
3	1	1.46*	0.53	0.01	0.39	2.53
	2	1.85*	0.42	0.00	0.99	2.7

Table 12 shows the specific comparison in the mean difference within Group 2 across the phases. Specifically, the difference in students' well-being in Group 2 before and after Phase 1 was not significant ( $p=0.53>0.05$ ). However, the difference between Phase 1 and Phase 2 was significant ( $p=0.00<0.05$ ), indicating a notable improvement in students' well-being after the second phase of the intervention.

According to the Repeated Measures Analysis of Variance (ANOVA), Mauchly's Test of Sphericity tests indicated that the assumption of sphericity was met ( $p=0.07>0.05$ , Table 6). Therefore, the results of this test can be used to analyze the effects of the PERMA-based lessons on students' well-being. Particularly, according to the Sphericity Assumed tests, the differences in students' well-being were significant both within groups and between groups ( $p=0.00<0.05$ , Table 7). Moreover, the Multivariate tests revealed a significant effect of the types of lessons on students' well-being, Wilks' Lambda=0.78,  $F=10.79b$ ,  $p=0.00<0.05$  (Table 5). These findings suggest that the types of lessons had a statistically significant effect on students' well-being. Specifically, the PERMA-based lessons contributed to upgrading Group 1's well-being from 6.03 in the pre-stage to 6.86 in Phase 1 ( $p=0.02<0.05$ ) (Table 4). This level was maintained in Phase 2 ( $M=6.91$ ,  $p=0.87$ ) (Table 4) when Group 1 switched to standard lessons. Meanwhile, Group 2' mean scores in the pre-stage ( $M=6.71$ ) and the standard lessons ( $M=6.32$ ) were not significant ( $p=0.53>0.05$ ) (Table 12) but then rocketed considerably to 8.16 after Phase 2 with the PERMA-based lessons ( $p=0.00<0.05$ ) (Table 12).

Moreover, the Mean Difference between the two groups was significantly different ( $M=0.75$ ,  $p=0.01$ ) (Table 9). Specifically, in the pre-stage, there was no significant difference between the two groups ( $M=6.37$ ,  $p=0.22>0.05$ ) (Table 10). In Phase 1, the difference between them was significant ( $M=6.59$ ,  $p=0.00<0.05$ ) (Table 10), meaning that Group 1's well-being ( $M=6.86$ ) was higher than that of Group 2 ( $M=6.32$ ). Conversely, in Phase 2 when there was a switch in the types of lessons, Group 2's well-being ( $M=8.16$ ) surpassed Group 1's ( $M=6.91$ ) when the  $p$ -value was  $0.01<0.05$  (Table 10).

### Summary of the results of the students' well-being

Briefly, in Group 1's case, the PERMA-based lessons enhanced their well-being to a significant level in Phase 1. This well-being level was maintained until Phase 2, when the difference between the two phases was not statistically meaningful. In the case of Group 2, while the standard lessons had no effect on their well-being in Phase 1, the PERMA-based lessons fostered it significantly in Phase 2. The comparison between the two groups reveals that Group 1 had higher levels of well-being than Group 2 in Phase 1 when they studied the PERMA-based lessons. This was reversed in Phase 2 when Group 2 had the PERMA-based lessons.

The PERMA-based lessons significantly impacted the two groups during the intervention. Specifically, they contributed to enhancing students' well-being while learning English speaking. Moreover, when implemented at an early stage of student learning,, these lessons can help sustain their well-being over an extended period.

### 4.2. The effects of the intervention program on students' negative feelings

**Table 13.** Descriptive statistics on students' negative feelings

	GROUP	Mean	Std. Deviation	N
PRE-STAGE	1	2.84	2.6	38
	2	1.97	1.98	41
	Total	2.44	2.36	79
PHASE 1	1	2.22	2.47	38
	2	4.17	2.45	41
	Total	3.13	2.63	79
PHASE 2	1	3.52	2.76	38
	2	1.94	2.2	41
	Total	2.78	2.62	79

The Descriptive statistics show that Group 1's negative feelings were 2.84 (SD=2.16) in the pre-stage, 2.22 (SD=2.47) in Phase 1 and 3.52 (SD=2.76) in Phase 2. Likewise, Group 2's mean scores were 1.97 (SD=1.98) in the pre-stage, 4.17 (SD=2.45) in Phase 1 and 1.94 (SD=2.2) in Phase 2.

**Table 14.** Multivariate tests on students' negative feelings

Effect		Value	F	Hypothesis df	Error	
					df	Sig.
Negative feelings	Pillai's Trace	0.06	2.19 <sup>b</sup>	2	74	0.12
	Wilks' Lambda	0.94	2.19 <sup>b</sup>	2	74	0.12
	Hotelling's Trace	0.06	2.19 <sup>b</sup>	2	74	0.12
	Roy's Largest Root	0.06	2.19 <sup>b</sup>	2	74	0.12
Negative feelings * GROUP	Pillai's Trace	0.24	11.87 <sub>b</sub>	2	74	0.00
	Wilks' Lambda	0.76	11.87 <sub>b</sub>	2	74	0.00
	Hotelling's Trace	0.32	11.87 <sub>b</sub>	2	74	0.00
	Roy's Largest Root	0.32	11.87 <sub>b</sub>	2	74	0.00

Table 14 presents the results of the Multivariate tests. It shows that the lessons had significant effects on students' negative feelings when compared between the groups ( $p=0.00<0.05$ ). However, the results within the groups indicate no significant effects of the lessons on students' negative feelings ( $p=0.12>0.05$ ).

**Table 15.** Mauchly's test of Sphericity on students' negative feelings

Measure: MEASURE_1							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon <sup>b</sup>		
					Greenhouse-Geisser	Huynh-Feldt	Lower bound
Negative feelings	0.97	2.15	2	0.34	0.97	1	0.5

The results of Mauchly's test of Sphericity on students' negative feelings in Table 15 indicate that the Sphericity test was not violated, as the p-value was  $0.34 > 0.05$ . This means that the results of the Sphericity assumed test in Table 16 can be used to interpret the effects of the lessons on students' negative feelings, both within and between the groups.

**Table 16.** Tests of within-subjects effects on students' negative feelings

Measure: MEASURE_1						
Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Negative feelings	Sphericity Assumed	23.98	2	11.99	2.46	0.09
	Greenhouse-Geisser	23.98	1.94	12.34	2.46	0.09
	Huynh-Feldt	23.98	2	11.99	2.46	0.09
	Lower-bound	23.98	1	23.98	2.46	0.12
Negative feelings * GROUP	Sphericity Assumed	134.51	2	67.25	13.78	0.00
	Greenhouse-Geisser	134.51	1.94	69.18	13.78	0.00
	Huynh-Feldt	134.505	2	67.25	13.78	0.00
	Lower-bound	134.505	1	134.51	13.78	0.00
Error(Negative feelings)	Sphericity Assumed	392.56	150	2.62		
	Greenhouse-Geisser	392.56	140.16	2.8		
	Huynh-Feldt	392.56	145.5	2.7		
	Lower-bound	392.56	79	5.23		

According to the Repeated Measures Analysis of Variance (ANOVA), Mauchly's Test of Sphericity indicates that the assumption of sphericity was met ( $p=0.34>0.05$ ) (Table 15). Therefore, the results of this test can be used to conclude the effects of the PERMA-based lessons on students' negative feelings. Accordingly, there was an insignificant change in students' negative feelings within the groups (the Sphericity Assumed test was  $0.09>0.05$ , (Table 16) while the difference between the two groups was significantly different (the Sphericity Assumed test was  $0.00<0.05$ ), (Table 16). Moreover, the results of the Multivariate tests indicated that the difference in students' negative feelings over time was insignificant as all the Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root tests had p-values of  $0.12>0.05$  (Table 14). Meanwhile, when compared between the two groups, the Multivariate tests revealed a significant change in students' negative feelings over time between the two groups when the p-value was  $0.00<0.05$  for all the Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root tests, (Table 14). This means that before Phase 1, Group 1's negative feelings score was higher than that of Group 2 (2.84 vs. 1.97) (Table 13). In Phase 1, however, when Group 1 had the PERMA-based lessons and Group 2 had the standard lessons, Group 1's negative feelings decreased to 2.22, which was lower than that of Group 2, whose negative feelings score reached 4.17 (Table 13). Then, when the two groups switched their roles in Phase 2, Group 1's negative feelings increased to 3.52, which was higher than 1.92 of Group 2 (Table 13).

The PERMA-based lessons had a significant effect on the levels of negative feelings between Group 1 and Group 2. Specifically, the lessons contributed to a reduction in students' negative

feelings in both groups during the intervention. However, further analysis may be needed to gain insights into the effects of these lessons on students' negative feelings within each group.

## 5. Discussion

Significant results were found from the study. First of all, it is vital to confirm that PERMA-based lessons can increase students' well-being considerably. This experiment simultaneously confirms what previous researchers e.g. Achor (2010), Dong (2021), Macintyre et.al. (2019), Seligman (2000), Seligman and Csikszentmihalyi (2000), Waters (2011), and Yang and Mohd (2021) concluded about the effects of positive psychology interventions on student's well-being. Specifically, students' positive emotions mostly govern their experience during the intervention of the PERMA-based lessons. This is in good agreement with Helgesen (2016) who emphasized that positive emotions should be the first aspect to be impacted in students' language learning. This finding is thus consistent with Macintyre (2019) and Seligman (2000) who claimed that cultivating positive feelings can help to decrease the counterpart in students' learning process.

Apart from the blossoming of students' well-being, the study also finds that students' negative feelings are significantly lowered thanks to the PERMA-based lessons. This, once again, concurs well with Macintyre (2019) and Seligman (2000). Despite this attribute, it is noted that students still feel scared when speaking English, meaning that although the PERMA-based lessons can nurture students' positive emotions, they cannot wash away students' negative feelings completely. This has to be acknowledged as a potential drawback of the intervention program that future applicants should take into consideration. Moreover, this value supports Kern et al. (2015), who concluded that the presence of positive feelings does not necessarily imply the absence of negative ones. Therefore, it can be confirmed that their multi-dimensional measure of students' well-being is a great source of reference for those who aim to explore their students' learning well-being.

## 6. Conclusion

This study examined the effects of PERMA-based speaking lessons on students' well-being. A counterbalanced design was employed, in which two experimental groups received the designed lessons at different times across two phases. To assess students' well-being, the same questionnaire was administered both before and after each phase.

The findings reveal that the intervention effectively enhanced students' well-being in English speaking lessons, thereby reducing their negative feelings associated with learning English speaking. Furthermore, early exposure to these lessons appeared to sustain students' well-being in later stages of their learning.

Despite the benefits of PERMA-based lessons, they do not completely eliminate learning-related depression and anxiety, but rather help maintain them at a low level. This limitation indicates that future applications of such lessons should consider additional measures to further support student learning.

Conclusively, the study confirms that PERMA-based lessons are effective in boosting students' well-being during the learning process and have the potential to reduce negative feelings associated with learning. Therefore, it is highly recommended to integrate these lessons into English language teaching, particularly in speaking classes, to foster a more supportive and engaging learning environment.

## 7. Limitations of the study

The study applied the counterbalanced design, meaning that the validity and reliability of the results were well controlled. However, a limitation of this design was the time constraints. Collecting

sufficient data for the study required a significant amount of time, which resulted in much effort and investment from the researchers.

## 8. Recommendations for further research

Based on the findings from the study, although students' well-being improved as a result of the intervention program, their depression and anxiety persisted during the learning process. Therefore, it is recommended that further research be conducted to explore students' depression and anxiety during well-being interventions. Another suggestion is to refine the design of future studies on the same research topic, maintaining the roles of the two groups across the two courses. With more intensive interventions for the experimental group, more valuable insights can be obtained. Moreover, future studies can examine the effects of the PERMA-based lessons on other aspects of student learning, i.e., learning outcomes or engagement with class activities.

## Declarations

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### About the Contributor(s)

**Tra-My Thi Ly**, Can Tho University, Can Tho University of Medicine and Pharmacy

ORCID: <https://orcid.org/0000-0001-8980-5822>

**Huan Buu Nguyen**, Can Tho University

ORCID: <https://orcid.org/0000-0002-6178-0085>



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