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# Multiple intelligence based tasks for enhancing reading motivation of university students in Ethiopia

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#### **ABSTRACT**

The purpose of the study was to investigate the effectiveness of multiple intelligence-based tasks in enhancing students' motivation towards reading. It employed a quasi-experimental design. A total of 60 communicative English class university students, who were selected purposefully participated as treatment and comparison groups. The research process was carried out with reading tasks that were designed based on a model for teaching using multiple intelligence-driven tasks for the treatment group while the comparison group followed the conventional approach for 12 weeks. English-reading motivation questionnaires and focused group discussions were used to gather data. Data normality check was carried out using Shapiro-Wilk tests, and a p value of 0.05 was used to determine the level of significance. T-tests were used to compare the scores between the two groups. It was found that multiple intelligence-based reading tasks (MIBRT) brought a significant difference in the students' motivation, with the effect size value ranging from low (for importance), moderate (for efficacy and for extrinsic), and strong (for intrinsic). It was suggested that university teachers should use multiple intelligence-driven reading tasks as an alternative scaffolding tools to raise the motivational levels of struggling readers in the context of the study.

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# 1. INTRODUCTION

The importance of motivation in education has theoretical foundations. Among several narrations, Maslow's hierarchy of needs [1], expectancy-value theory [2], and self-determination theory [3] are the most recognized ones in education. Among other theories of motivation, the expectancy-value theory is highly linked with students' beliefs of success in education based on the expenses of the tasks they experiment with while learning certain content. Students in higher education come with a different degree of motivation to learn. The level of motivation at this level depends on both internal and external factors. Some relate their motivation to their personal growth in terms of the behavioral changes they bring about in the course of instruction. Others relate to rewards such as grades and completing the requirements of a course. Motivation is the internal process that arouses, directs, and sustains behavior towards achieving a goal or satisfying a need. It can be driven by intrinsic factors, such as personal interest and curiosity, or extrinsic factors, such as rewards and recognition [4].

Motivation plays a crucial role in fostering a love for reading. When individuals are intrinsically motivated to read, they are more likely to engage in independent reading, explore various genres, and

develop a lifelong reading habit. Motivated readers are also inclined to take on challenging materials, thus enhancing their reading abilities and enjoying the process. Research suggests that multiple intelligence-based reading tasks (MIBRT) can significantly impact reading motivation. By providing opportunities for students to explore and apply their individual strengths and intelligences while reading, their confidence and self-efficacy are boosted. The sense of accomplishment derived from successfully utilizing their preferred intelligences enhances their motivation to read and discover more achievements [5]. Furthermore, lessons that address students' various talents are likely to raise motivation. Studies confirm that motivation plays an invaluable role in learning, whether learners are motivated intrinsically or extrinsically. Sande *et al.* [6] asserted that intrinsically motivated students are likely to have a reasonably higher reading capacity. This is because students with this subcategory of motivation handle the reading task by being immersed in the activity of reading for pleasure and satisfaction [7]. Extrinsic motivation, on the other hand, is related to external factors that can stimulate students' desires to read [5], [8]. Students at the university are required to have such motivation as it is related to various awards, including scoring good grades and achievements in various courses. Students at this level are also expected to have reasonable instrumental motivation, which aids them in securing future careers such as jobs and opportunity [5].

While the narrations are true about motivation, awareness and practice observed in the context of the current study is polarized. Teachers in the current research context generalize students at this level are self-motivated, hence they presume it is enough to focus on subject matter/content than infusing strategies that enhance motivation. The reason for carrying out this research was founded on the observation that students reading achievements has become lower due to teachers wrong expectation. Dealing with individual differences (intelligences) and motivation has been one of the biggest challenges facing the educational world today [9], [10] and it is also one of the ways to come out of most of the discrepancies recorded in the area of education. Leeuwen [11] affirmed that the most crucial contribution that English as a foreign language (EFL) education can make to learners' development' is to lead them in a direction where their inside talents best suit them. Multiple intelligences as a learning model that centers learners' inclinations by far may result in scaling up the deteriorating levels of students' performance and motivation towards reading. As one of the cognitive skills, Penalber [12] prioritized multiple intelligence theory (MIT), which paved the way to efficient comprehension, retention, and motivation through the eight gates of intelligence. Therefore, strategies based on MIT can help struggling students improve their motivation towards reading.

Meanwhile, experience and researches locally show motivation is almost a neglected construct in lesson delivery and activity design [13], [14]. The worst situation is that the problem is not restricted to a specific level of education rather it transcends itself to the upper levels [15]. Consequently, when students join universities, they do not come with the sufficient reading motivation. It is studied that a search for understanding and/or the act of learning via text involves the integration of cognitive and motivational forces [16]. However, in learning and teaching the reading skills in the research area, more energy and time are allocated for the subject matter than planning and implementing scaffolding activities, strategies, and techniques. The most important pillar of knowledge-the drive to learn (i.e., motivation), is overlooked in the teaching at this level compared to the lower levels. In the research area the practice of learning to read is still not unleashed from the linear and traditional procedures. Coupled with this, the element that is considered contributing to its development (i.e., motivation to read) is one of the neglected components.

These days, educational areas make use of the insights from MIT as it encompasses the integration of both learning styles and strategies that are directly linked with enhancing learners motivation to read [14]. A study conducted by Makebo *et al.* [17] revealed that there is a positive relationship between students' MI profile, comprehension, and motivation. Guthrie and Klauda [14] emphasized that reading engagement is directly proportional to motivation. The reading motivation in turn lets readers get high scores in the reading tests. MIT, unlike the conventional thoughts of cognitive psychologists, adds the perspective that learners are better supported in their retention of knowledge and skills if instructions are presented in various ways that meet the learning pace and respective proclivities [18]. Studies locally and abroad reported the appealing results multiple intelligences as a tool to enhance reading motivation and various aspects of language [19]–[21]. The previous studies illustrated strategies fetched from MIT provide unlimited techniques to enhance novelty in instruction that enhance motivation. The studies added a lot to acknowledge the area, but still, more studies need to be conducted on specific areas like comprehension and motivation to read specific to higher education.

The current researcher attributes university students' poor reading achievements with lack of adequate integration of individual inclinations as a resource for enhancing reading motivation. This study in its pilot phase particularly identified a gap as long as introducing motivational elements that base multiple intelligence strategies in the objectives and activities of the communicative English skills module, and the researcher was unable to locate any document that explicitly prescribes the use of multiple intelligence strategies to enhance reading motivation. Therefore, the researcher hypothesizes that a lack of motivational tools that make use of students multiple intelligences is lacking both in the material and in the instruction,

which may be reasons for poor reading achievement. Based on the problem stated, the following objectives were formulated: i) to identify students level of motivation to read through employing multiple intelligence-based reading tasks and ii) to determine whether a difference existed in the magnitude of the impacts of multiple intelligence-driven reading tasks on various types of motivation towards reading. In line with the objectives the researcher formulated the following hypotheses:

- H01: there is no significant difference in the levels of motivation to read between the experimental group learners and the comparison group students.
- Ha1: there is a significant difference in the levels of motivation to read between the mean scores of the experimental group and the comparison.
- H02: there is no significant difference in the levels of motivation between the mean scores of the experimental group and the comparison groups on various levels of motivation to read at pre-test and post-test levels.
- Ha2: there is a significant difference in the levels of motivation between the mean scores of the experimental group and the comparison student on various levels of motivation at the pre and post levels.
- H03: there is no significant difference in the levels of motivation between the mean scores of the comparison groups due to multiple intelligence-based motivation tasks at pre-test and post-test levels.
- Ha3: there is a significant difference in the levels of motivation between the mean scores of the comparison groups due to multiple intelligence-based reading instructions at pre-test and post-test levels.

#### 2. METHOD

#### 2.1. Research paradigm and design

The current research makes use of a quasi-experimental design, which falls under the domain of the post-positivist paradigm [22]. This design was employed because the samples were not randomly assigned into the comparison and experimental groups. Cohen *et al.* [23] suggest that random sample assignment is difficult in a quasi-experimental design because it can disturb the natural learning placement of classes and to investigate casual relationships in real-world settings due to ethical and practical reason [22].

## 2.2. Participants and research sample

The participants in this research were undergraduate students from Hawassa University which is located in Ethiopia. The data was collected from students enrolled in a communicative English skills course that mainly focused on enhancing reading skills and other aspects of language. The participants were selected purposefully. This was made not to alter the natural placements. A total of 60 students in the two intact groups, constituted both the experimental and comparison groups. The experimental group received treatment using the redesigned teaching material based on multiple intelligence theory-driven motivational reading tasks, while the comparison group was imparted using the conventional approach.

An English reading motivation questionnaire (ERMQ) and focus group discussion were used as instruments. The ERMQ was adapted from Mori [24] with the intention of measuring reading motivation. There are four subscales in the ERMQ: i) intrinsic value of reading; ii) extrinsic utility value of reading; iii) importance of reading; and iv) reading efficacy. The intrinsic value of reading refers to reading curiosity, reading involvement, reading avoidance, and reading challenge. The extrinsic utility value of reading refers to motivation to engage in a task in order to obtain external rewards, such as good grades. The importance of reading refers to a student's perceived usefulness of reading. And reading efficacy refers to an individual's sense of efficacy and beliefs about their ability to read in English. The internal consistency estimate of reliability for this questionnaire was .93 (N=447). In the pilot phase it was rechecked for the current group of students and was found to be .787 (N=60). In addition to the motivation questionnaire, focus group discussions were used to complement the data collected from the questionnaire. In accordance with this, five initial statements, were used to initiate deeper thoughts on how well the approach enhanced or detracted motivation.

# 2.3. The teaching material and instruction

Prior to the experiment, a pilot study was carried out with the purpose of redesigning the reading skills tasks based on motivational strategies of the multiple intelligence approach (the independent variable). This was done first redressing them in terms of the seven steps outlined by Wreede [25] for designing multiple intelligence integrated lesson plans as a model. Unlike the conventional tasks prescribed in the module, the reading skills activities and tasks for the treatment group were altered to reflect the students' multiple intelligences. Several intelligences were employed per reading session, as including all of them per session could be unmanageable due to time. For example, to carry out verbal and linguistic intelligence, students were required to brainstorm, use new vocabulary, orally predict, and tell related stories in their own words. To carry out logical and mathematical intelligence, students were required to reason out by asking and

answering questions, explain their answers, unscramble ideas and letters, sequence narrations, and work with numbers and figures. Students employed visual and spatial intelligence through illustrations, producing logos, graphs, and diagrams, and using pictures of the new vocabulary and the themes of the text. They were also required to role-play characters in a text, react to contents using body movements, and use concrete materials while learning the new word as part of bodily or kinesthetic intelligence. For musical and rhythmic intelligence, they were required to create rhythmic patterns, sing songs, and listen to lyrics related to what they read. Students shared work with one another, assessed peers' work, and worked collaboratively as part of their interpersonal intelligence. Additionally, each student had a space to work individually and reflect on his or her progress and achievements as part of his or her intrapersonal intelligence. Finally, they associated what they read with a natural prototype in order to experiment with natural intelligence. All these have been done to investigate the effect of using multiple intelligences to enhance the motivation of university students to read various texts related to their studies.

Using the mentioned examples and strategies as a model to redress the activities of the intervention lesson, the experiment was carried out using five reading passages with motivational strategies that based students' intelligence and emphasizing various reading levels/types (details, main ideas, guessing vocabulary, inference and referencing). In addition to components of reading skills, a total of 55 words carefully selected from each reading passage were taught with delivery techniques that emphasized multiple intelligence strategies to see the impact the approach had on motivation towards reading in the context of the study area. Treatment adherence was also assessed by observing every third lesson out of the 33 intervention lessons using a pre-prepared observation checklist in collaboration with an independent rater. A total of 11 sessions were observed. Overall adherence to treatment averaged 84%, ranging from 79% to 88%.

#### 2.4. Methods of data analysis

The pre-post English motivation questionnaires (dependent variable) were analyzed using both descriptive (mean, standard deviations) and inferential statistics (t-tests) because the study is only comparing two groups or conditions [26]. The scores collected from the Likert-scale questionnaire were computed using the SPSS version to compare inter- and intra-group differences. In a similar vein, the effect size is also measured using Cohen's d index of effect size formula to see the strength of the difference or how strong the effect was. In this study, the researcher used Cohen's suggestion [27]: 0-.20=weak, .21-.50=moderate, .51-1.00=moderate, and >1.00=strong effect.

# 2.5. Ethical issues

Before participating in the research, participants in this research got an explanation in advance about the research objectives and voluntary participation in this research. Researchers have obtained human research ethics approval from the institution. This study was governed with the ethical principles specified in the Hawassa University. Hence, approval for the study protocol was granted by the Hawassa University Ethics Review Committee (CRERC) under reference number [CSSH/101/2022]. Informed consent was obtained from all participants, and they were provided with clear information regarding the nature, purpose, and potential implications of the study. Confidentiality and anonymity of participants have been strictly maintained throughout the research process, and any identifying information has been appropriately safeguarded. Finally, the participants were informed that they had the freedom to decide whether or not to participate in the study, and they had the option to withdraw from the intervention at any point if they wished.

# 3. RESULTS AND DISCUSSION

#### 3.1. Results

#### 3.1.1. Normality test

By using a significance level of 5%, based on the results of the ERMQ data in the experimental group, the probability score (Sig.) was .017>.05, while the probability score (Sig.) of the ERMQ data in the comparison group, was .737>.05. Therefore, it can be concluded that the samples of the comparison and experimental groups were derived from a normally distributed population. Since the data meets normality criteria, a statistical test to determine the effectiveness of multiple intelligence reading tasks for enhancing university students motivation to read can be performed in Table 1.

# 3.1.2. Students' English reading motivation before the intervention (pre-ERMQ)

Students' English reading motivation scores before the treatment in the experimental and control groups resulted in little variation in the average scores. The motivation questionnaire depicts a p value (p=.367, p>.05). The independent sample t-test revealed there was no significant difference between the two groups before the intervention, as displayed in Table 2.

Table 1. Test of normality

Reading motivation		Kolmogo	rov-Sm	irnov	Shap	k			
		Statistics	df	Sign	Statistics	Statistics df			
Group	Experimental	.158	30	.054	.913	30	.017		
	Comparison	.097	30	.200	.977	30	.737		

Table 2. English reading motivation before the intervention (NO.=60)

Treatment time	Group	Mean	SD	t	Sig (two tailed)
Before intervention	Experimental	2.8	.54	.90	.367
	Comparison	2.92	.44		

## 3.1.3. English reading motivation for types of motivation

Table 3 shows the comparison and experimental group's mean scores on their intrinsic, extrinsic, efficacy, and importance subcategories of motivation as described in the background of the study. According to the mean and standard deviation scores shown in the table, there were no variations existed initially on those aspects of motivation. Eventually again, the t-test for equality of means depicts a p value (p=.94, p<.05). The independent sample t-test indicated there were no significant differences between the two groups attributed to those components of motivation.

Table 3. English reading motivation for types of motivation

Questionnaire		Experimental group (N=30) Comp		Comparison gr	Comparison group (N=30)			C: - (2 t-:1- 1)
		Mean	SD	Mean	SD	ι	df	Sig (2 tailed)
Motivation categories	Intrinsic	2.93	.66	2.94	.62	.076	58	.94
	Extrinsic	2.84	.43	2.78	.41	375	58	.709
	Efficacy	2.94	.56	2.8	.47	-1.05	58	.29
	Importance	3.34	.91	3.36	.76	.07	58	.93
Grand pre motivation		2.8	.54	2.9	.44	.90	58	.36

# 3.1.4. Students' reading motivation after the intervention

After the treatment, however, it can be noted an increase in their reading motivation. Before the treatment, the mean score in the experimental group's motivation, which was (2.8), was made in increments of (3.88); refer to Tables 3 and 4 to notice the changes. Hence, it can be deduced that the changes recorded in the treatment group's motivation were due to the intervention using MIBRT. Meanwhile, the average score in the comparison group, which was 2.92, made a slight change to 3.18, which was not significant statistically. Unlike the results obtained before intervention, the (p value here=.000) showed a significant change of the intervention on the motivation of the students with an effect size of 1.1 that indicated a strong effect after the intervention in the treatment group than the comparison group, as shown in Table 4.

Table 4. English reading motivation after the intervention (NO.=60)

Table 4. Eligibil feading motivation after the litter vention (NO.=00)										
Group	Mean	SD	t	Sig (2-tailed)	Cohen's D					
Experimental group	3.88	.42	-4.82	.000	1.1					
Comparison group	3 32	66								

# 3.1.5. English reading motivation for sub categories of motivation

Similarly, Table 5 shows the comparison and experimental group's mean scores on their intrinsic, extrinsic, efficacy, and importance of motivation as subcomponents of motivation. Accordingly, an increase in students' motivation was recorded in those aspects. The t-test also depicts a p value (p<.05 except for reading importance, p>.05, p=0.65). Hence, the independent sample post-test indicated there were significant differences between the two groups attributed to those three components of motivation except for reading importance. The figures in the grand motivation (the t-test) for equality of means depicts a p value (p=.000, p<.05) indicating that the independent sample t-test reassured there is a significant difference between the two groups in their motivation.

# 3.1.6. English reading motivation paired sample t-test-experimental group

The results in Table 6 indicate the participants brought improvements in their components of motivation with in a group. The t-test depicts a p value (p<.05 except for reading importance p>.05, p=.65).

Hence, the paired sample post-test indicated there were significant difference with in the group attributed to those three components of motivation except for reading importance (p>.05, p=.63) The grand total of motivation figure indicates that the difference among the groups residing motivation towards reading skills was significant. Eventually again the t-test depicts a p value (p=.000, p<.05) that the paired sample t-test indicated difference with in the group in their motivation due to the treatment.

Table 5. English reading motivation for sub categories of motivation

Tests		Experimental g	roup (N=30)	Comparison gr		4£	C: - (2 +-:11)	
		Mean	SD	Mean	SD	ι	df	Sig (2 tailed)
Motivation categories	Intrinsic	3.49	.42	2.94	.62	-3.9	58	.000
_	Extrinsic	3.28	.89	2.84	.75	-2.09	58	.000
	Efficacy	3.85	.55	3.28	.89	-2.95	58	.004
	Importance	3.46	.96	3.36	.76	44	58	.65
Grand motivation		3.8	.42	3.18	.67	-4.82	58	.000

Table 6. English reading motivation paired sample t-test -experimental group

ERMQ		Pre ERMQ (N=30)		Post ERMQ (N=30)			4£	Sig (2 tailed)	Effect size
		Mean	SD	Mean	SD	ι	aı	Sig (2 tailed)	Effect size
Motivation categories	Intrinsic	2.94	.62	3.49	.42	-5.03	29	.000	1.03
	Extrinsic	3.28	.86	2.84	.75	2.46	29	.000	.54
	Efficacy	3.85	.89	3.89	.55	-2.99	29	.006	.59
	Importance	3.36	.76	3.46	.96	48	29	.63	.11
Grand motivation		3.8	.42	3.18	.67	-4.82	58	.000	1.4

# 3.1.7. English reading motivation paired sample t-test for comparison group

The numbers in Table 7 imply the participants were nearly congruent at this level of testing in those aspects of motivation. Eventually again, the t-test depicts a p value (p>.05 for all aspects). Hence, the paired sample test indicated an insignificant difference in the group attributed to those components of motivation. The grand totals of motivation imply the comparison-paired groups were almost congruent. This assumes that the difference among the groups residing motivation towards reading motivation was insignificant. Eventually again, the t-test depicts a p value (p=.000, p>.05) that indicates similarity within the group.

Table 7. English reading motivation paired sample t-test for comparison group

ERMQ		Pretest (	N=30) Posttest (N=30)		+	df	Sig (2 tailed)	
		Mean	SD	Mean	SD	ι	uı	Sig (2 tailed)
Motivation	Intrinsic	2.94	.62	3.49	.58	58	29	12
	Extrinsic	3.28	.86	3.27	.81	.07	29	.94
	Efficacy	2.89	.75	3.2	.82	-1.57	29	.12
	Importance	3.36	.76	3.1	.71	1.34	29	.18
Grand motivation		3.32	.49	3.34	.68	16	29	.87

## 3.1.8. Results of focus group discussion

The focus group discussions among selected participants yielded results that were thermalized into two major concerns. The first one was related to a lack of experience with multiple intelligence theory-based tasks and instruction. For example, in the focus group discussion, students reported ideas as, "at the beginning, it created a sort of strange feeling. It was challenging but rewarding in the end. It created a sense of learning and enhanced motivation." The other reflection related to their perceptions of the effectiveness of the instruction. They reported that, though there was some unfamiliarity with multiple intelligence-based tasks due to being engaged in conventional classes, they still perceived that such activities could add motivation and variety in the classroom. Activities were demanding, yet they felt it provided more opportunity to learn than the conventional out-of-school. The result out of the focus group discussion supported the results from the t-tests and descriptive statistics.

#### 3.2. Discussion

This study aimed to determine how well MIBRT influence students' motivation to read. The findings disclosed that students' motivations towards reading were significantly improved through MIBRT. There was an improvement with regard to various types of reading motivations, such as intrinsic, extrinsic, efficacy, and importance of reading for learning. The group that attended the conventional ways of presenting a reading lesson, however, did not show significant improvement in motivational levels towards reading.

The experiment has shown new vistas compared to the conventional ways of teaching and motivating reading class students at this level. This result is supported by several investigations. Tasks that make use of learners intelligence are likely to boost motivation [28]. Motivation can influence what individuals learn and how they learn [6], [27], [29], [30]. Motivation is linked to cognitive and affective processes, like thoughts, beliefs, and goals [31]. Motivation is a key component of interpersonal and intrapersonal intelligence, which helps both teachers and students better identify those factors that have an effect on the degree of motivation [31].

In addition to research narrations about motivation, the effect size for various types of motivations was computed and found to range from .11 to 1.4, which showed the intervention positively impacted the English reading motivation of students for some of the types, for example, intrinsic, extrinsic, efficacy (i.e., moderate to strong), and low importance. From this, it was possible to conclude that the treatment had a significant effect on the experimental groups on the majority of types of English motivation to read of students, who reasoned to accept the alternative hypotheses. In line with the findings of the current study, employing multiple intelligence strategies throughout learning improves motivational levels in academics. If students manipulate interpersonal and intrapersonal intelligence, they are likely to improve motivation [4], [6], [14], [32]–[34]. In addition to mastering the subject matter knowledge, teachers can make a difference by using scaffolding strategies to go with students' intelligence, both to enhance motivation and comprehension of contents [35]. Therefore, tasks that incorporate the multiple intelligences of students at this level of education are likely to enhance the reading motivation, which is currently in decline [29]. The discussion of the questionnaire was supported by a focus group discussion, which was carried out at the end of the intervention. Students reported in the focus group discussion that, despite being unfamiliar with the approach and its demanding nature, they understood activities that based on multiple intelligences possibly created variety and enhanced the amount and quality of learning. On the other hand, though they lack empirical evidence, other scholars have also attempted to associate the ability of learners to use their potential in the academic context with the range of multiple intelligence-based strategies they employ. For example, Baş [36] stated that readers are highly motivated/interested in lessons and activities that provide students plenty of opportunities to understand and make use of their own inclinations and potentials.

The findings of the current research support several outcomes in the area that indicate teaching and learning using the multiple intelligences on students boost motivation, which in turn leads to gain achievement [14], [37]–[40]. The discussion tried to emphasize the findings that came out of the intervention. With all of its unfamiliarity for students in the research area and its demanding nature, it was understood that activities that based students intelligence created variety and enhanced the amount and quality of learning to read. Hence, the researcher, by acknowledging the counter arguments that tailoring instructions towards intelligence might have a few instances of not contributing to motivation, still supports findings out of the majority of research in the area that using and teaching multiple intelligences boosts reading motivation of different types, which in turn leads to gaining achievements.

#### 4. CONCLUSION

The systematic intervention program that integrated strategies from the approach proved to enhance reading motivations and interest. The findings of this research indicated that multiple intelligence strategy driven activities positively impacted the reading motivation. Hence, the research was intended to shed light on the possible integration of multiple intelligences at this level of education and raise awareness on the part of practitioners to make use of the approach as an alternative method to boost the capacity of university students reading motivation and bring struggling readers towards the minimum reading competence level that is marked by the Ministry of Education in Ethiopia, where English is becoming increasingly important but much support is lacking, to learn the language. Of course, this research is limited in its scope as it was carried out focusing on a communicative English skills course for university students. Data were collected from limited participants focusing on specific content (reading tasks). The researcher believes multiple intelligence based tasks could possibly be sources of more empirical evidence or generalizations if other data related to demographic variables (age, gender, and academic levels) were included. While future studies with a different design, a large sample size, longer intervention periods, and advanced measures will provide a better generalization of the instructional approach, the researcher hopes such studies may possibly reduce the magnitude of dissatisfaction in the area.

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