



The Effect of Quantum Teaching Method on Writing Motivation: an explanatory mixed-methods investigation

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Abstract

Quantum teaching method (QTM), a student-centred model of education, which provides the possibility for the integrated use of a combination of learning theories, has not received adequate attention in EFL teaching. This study, adopting an explanatory mixed-methods design, aimed at examining the effect of QTM on EFL learners' writing motivation. The participants comprised 78 pre-intermediate EFL learners who were placed into two groups based on convenience sampling procedures. The first group was assigned as the experimental group and another group as the control group. A writing motivation questionnaire (WMQ) was administered to both groups as pretest. Next, the experimental group was exposed to QTM for writing instruction while the control group received conventional writing instruction. After treatment, both groups took the WMQ as posttest. Moreover, 15 participants from the experimental group took part in semi-structured interviews. The results of Mann-Whitney U Test indicated the significantly positive impact of QTM on writing motivation. The results of qualitative analysis revealed five themes including satisfaction, enjoyment, engagement, personalization, and lowering anxiety as the factors improving writing motivation. Based on the results, EFL teachers are encouraged to employ QTM to enhance learners' writing motivation.

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Introduction

The mastery of writing as a highly complex and demanding skill (Lei et al., 2023) entails due attention to affective factors such as anxiety and motivation (Shen et al., 2023). Motivation, defined as the learners' eagerness to take part in continuous learning (Darvin & Norton, 2021) is deemed to contribute to successful L2 learning (Amirian et al., 2021; Vakilifard et al., 2021). The results of previous investigations (e.g., Fathi et al., 2023; Graham et al., 2021) have corroborated the pivotal role of motivation in writing development. Despite the fact that many studies, conducted in the context of writing, have sought to shed light on the social and cognitive factors conducive to writing improvement (MacArthur et al., 2016), only in recent years, some investigations have embarked on gaining theoretical and practical insights into the associations between writing and motivation (Camacho et al., 2020; Graham et al., 2018). Thus, more attention is required to identify the factors which can boost learners' writing motivation and consequently their writing development (Graham et al., 2022; Camacho et al., 2021).

The results of previous studies indicate that writing motivation has so far been studied in relation to strategic writing behaviour (Graham et al., 2017), writing self-efficacy and task value (Shen et al., 2023), anxiety and achievement (Zerey & Müjdeci, 2023), and collaborative writing (Fathi et al., 2023). However, the role of different methods of teaching on writing motivation remains quite under-explored (Camacho et al., 2021). One of the teaching methods which has quite recently attracted the attention of scholars in the field of general education is the quantum teaching method (QTM) (Senmay et al., 2021).

As Bahaddin and Yusuf (2015) maintain, QTM, characterised as a student-centred model of education, provides the possibility for the integrated, effective, and efficient use of a combination of learning theories. Consequently, the QTM serves as an initiative used by teachers to foster coordination among different moments of learning, which leads to the enhancement of skills and natural talents in learners (Khozaei et al., 2022). A review of previous investigations, in the mainstream educational contexts, demonstrates that the implementation of QTM has so far proved effective in descriptive writing (Arditya & Syamsi, 2019), learning achievement and motivation to learn (Khozaei et al., 2022), language competence (Mantra et al., 2019), civics learning (Senmay et al., 2021), learning physics (Kalsum, 2018), writing, critical thinking, and learning motivation (Akihary & Apituley, 2022). However, studies probing into the implementation of the QTM in the field of foreign language teaching (FLT) are non-existent. Accordingly, this study, aiming at filling the lacuna in the extant empirical literature and contributing to expanding the line of research from mainstream education to the context of FLT set out to examine the effect of QTM on EFL learners' writing motivation.

Literature Review

Writing Motivation

In SLA research, motivation is concerned with a driving force that makes the student pursue achievements, provides the possibility of successful performance, creates the rewarding values of successful task performance, as well the desire to avoid failure and feeling satisfied with the learning process (Dörnyei & Ushioda 2013; Keller; 2010; Shahriar et al., 2011). Some studies

have so far indicated associations between EFL learners' motivation and engagement (Yu et al., 2019), enjoyment, anxiety, and attitudes (Dewaele et al., 2022), teachers' motivational strategies (Soraya et al., 2017), group processes (Chang, 2010), satisfaction (Shahriar et al., 2011), and the use of games, songs, and stories (Chou, 2014). One area of relevance for motivation research is motivation related to language skills such as reading and writing.

As Hyland (2003) argues, when it comes to second language learning, learning to write has proved to be the most challenging area, which requires a high level of motivation. Given that writing has proved a daunting skill in EFL contexts, researchers and scholars have gone to a great length to find out how the writing skill develops (Hidi et al., 2002). As Zhang (2016) notes, there should be an increased focus on L2 writing motivation since effective writing requires EFL learners to be highly motivated given a high level of cognitive and metacognitive burden. Although many studies have dealt with cognitive processes in writing (Bai et al., 2020), very few have addressed writing motivation (Bai & Guo, 2019). Writing motivation has to do with the perceptions and interest related to writing (Ekholm et al., 2018), the extent to which one is confident in their writing competence (Pajares & Johnson, 1996), the individual's motives for taking part in the activity of writing (Ryan & Deci, 2000), the individual's perceptions of the communities where writing is used (Graham, 2018), the importance one attaches to writing better than others (Elliott, 1999), mentality of the utility and value of writing (Eccles, 2005), the factors contributing to writing success or failure (Weiner, 1985), and established or developing writing identities (Graham, 2018).

A review of literature indicates that an abundant number of investigations have been carried out in regard to writing motivation. Shen et al. (2023) sought to contribute new insights into the level of writing motivation among EFL learners, as well as the interaction between two essential motivational variables, i.e., self-efficacy and task value. The results showed that the participants had a medium level of writing motivation. Moreover, Structural Equation Modelling (SEM) revealed a complex relationship between task value and self-efficacy. Zerey and Müjdecı (2023) conducted an investigation to find about the relations among successful L2 writing, anxiety, and motivational factors, including the affective aspects, self-efficacy, perceptions, and writing goals. The findings showed that successful L2 writing was correlated with higher confidence, reduced anxiety, positive feelings towards writing, and the eagerness for mastering L2 writing.

Fathi et al. (2023) carried out a study to examine the effect of a flipped classroom (writing) on EFL learners' writing and their motivation for writing. The result revealed that the learners who had taken part in flipped writing classroom had a better performance than those who had attended a different classroom. More specifically, the former outperformed other classes in terms of writing performance and writing motivation. Camacho et al. (2021) conducted a detailed review of the literature and concluded that the majority of the studies reviewed showed moderate positive correlations between motivation and writing performance. Moreover, the findings indicated that, as documented in the selected studies, writing motivation was impacted by teaching methods and techniques (e.g., the teaching of handwriting, the provision of self-regulated strategy, and collective writing).

Graham et al. (2021) studied whether EFL learners' motivational beliefs and perceptions were correlated with their writing performance. The findings revealed that most learners considered intrinsic and extrinsic the motives driving their writing behaviour, with 38% of the learners citing that self-regulation incentives had such an effect. Ling et al. (2021) gave an overview of the validity of the results on the relation between writing motivation and multiple indicators of academic performance. The participants' writing goals, perceptions, beliefs, and affect were elicited, using writing motivation survey. The findings revealed a unidimensional structure for confidence and affect, a 3-factor structure for goals, and a 2-factor structure for beliefs. The results also showed a weak but significant correlation between motivation level and target performance measures, as well as between motivation and writing features.

Graham et al. (2022) assessed the extent to which a multi-dimensional scale of motivation was valid for writing. Drawing on an earlier scale, as well as the theoretical fundamentals associated with writing beliefs, they devised the WMQ. The sample was made up of fourth graders and fifth-grader students who completed 28 writing motivation items aimed at verifying seven motives for writing; 2 motives dealt with intrinsic driving forces for writing (curiosity, involvement); three motives had to do with extrinsic reasons (rewards, marks, competition pressure, and social recognition); and two motives were concerned with self-regulatory reasons (emotional regulation, easing pressure and boredom). The results of confirmatory factor analyses corroborated the hypothesized structure of the WMQ, with each one of the seven motives found to enjoy adequate reliability for research objectives. Furthermore, the WMQ was found to predict learners' writing performance.

Quantum Teaching Method

As Deporter et al. (1999) hold, QTM involves coordination among a multitude of interactions occurring during learning. Such interactions, including the elements required for effective learning, enhance learners' natural abilities so that both learners and others benefit from such improvement during the teaching-learning process (Deporter et al., 1999). Therefore, QTM can be deemed as a method used by teachers to make changes to the learning environment, rendering learning effective and fun as such interactions can be entertaining (Arditya & Syamsi, 2019). One of the components of QTM is accelerated learning, paving the way for the creation of an active learning atmosphere by focusing on student-centred approach (Suryani & Drajadi, 2021).

In the settings where quantum learning occurs, both teachers and learners obtain the competence and motivation required to establish an academically successful school community (Senmay et al., 2021). Indeed, the use of various effects and materials, including different colours, vivid environments, along with the contents can trigger the effective involvement of learners in the learning process (Suryani, 2013). Generally, the QTM can be considered a systematic approach adopted by educators to teaching the whole person. This recently developed method consists of some core elements, making it possible for the learners to learn effectively within short period of time.

QTM, taking advantage of the role of ice breaking as a means of communicating messages is construed to involve the full focus, interest, and uniqueness of learners in the learning process (Lenny et al., 2018). A quantum learning model, EELDRC, (DePorter & Hernacki, 1999). has

taken its name from the initials of the phases that make up this model. The phases, consisting of Enrol, Experience, Label, Demonstrate, Review, and Celebrate, can be used to enhance the innate learning needs of learners to improve learners' interest and motivation (DePorter & Hernacki, 1999). In the Enrol phase, the connection with the real world and the interest in the subject is established so that learners' curiosity is awakened and they are naturally drawn in the learning process. In Experience, the background information of the learners is activated, which increases the sense of curiosity and the need to learn. At the Label stage, where it is possible to use colors, graphics, and posters, the natural labelling and identification needs of the learners are exploited. At Demonstrate, the teacher provides an opportunity for the students to receive new information and integrate it with their prior knowledge. At the Review stage, the brain's neural networks are reinforced and the knowledge and skills gained are further developed. Additionally, there is a feeling of "knowing what I know" at this stage and thus the sense of self-confidence forms. And finally, the teacher gives appreciation to the students' work. Regarding the elements of quantum teaching, DePorter et al. (1999) declared that exploitation of the physical environment, music, peripherals, teacher, atmosphere, arts, and concerts, are some core elements for the successful implementation of QTM.

Many studies, in the mainstream education, have provided evidence concerning the effectiveness of QTM. For instance, Khozaei et al. (2022) investigated the effects of QTM on learning achievement, motivation to learn, and retention among nursing students during critical care nursing education. The results indicated the positive effect of QTM on students' learning achievement, motivation to learn, and retention. In another study, Mantra et al. (2019) investigated the effect of QTM on improving students' language competence. The study made use of pre-test, post-test, and a questionnaire tapping into participants' attitudes and motivation. The results indicated the positive influence of QTM on enhancing students' language competence. Moreover, the results of data analysis for the questionnaire scores clearly showed that students' attitudes were positive towards QTM implementation and they were highly motivated when QTM was used. Senmay et al. (2021) aimed at determining the effectiveness of the QTM on Civics learning outcomes via conducting a meta-analysis. The results of the effect size analysis showed that the QTM model is effective on student Civics learning outcomes. Kalsum, (2018) aimed at finding the effect of QTM on learning physics. The results revealed the positive effectiveness of QTM on students' physics learning. In another study, Arditya and Syamsi (2019) showed the positive influence of the QTM on students' descriptive writing.

Research Questions

This study aimed at answering the following research questions:

RQ1: Does QTM significantly affect EFL learners' writing motivation?

RQ2: What are EFL learners' perceptions towards the effectiveness of QTM in improving their writing motivation?

Methodology

Participants

The initial participants comprised 196 female EFL learners enrolled at the pre-intermediate level in a language institute in Iran. They ranged in age from 18 to 40, learning English as a

foreign language (EFL) at a language institute located in Babol. The initial participants were selected using non-random, convenience sampling from among female learners. Then, 78 EFL learners were chosen out of the initial total of 196 based on their performance on an Oxford Quick Placement Test.

Instruments

Oxford Quick Placement Test (OQPT)

As a reliable and valid instrument, OQPT assesses non-native speakers' English language proficiency. This test developed by Oxford University Press is composed of 60 items, focusing on L2 learners' knowledge and performance regarding grammar, lexical items, and reading comprehension. The ability is measured by assigning scores which represent learners' level of L2 proficiency ranging from beginners to high advanced as follows: 1-17 (Beginner), 18-27 (Elementary), 28-36 (Lower-Intermediate), 37-47 (Upper-intermediate), 48-55 (Advanced), 56-60 (High advanced). The results are interpreted in accordance with the Common European Framework of Reference (CEFR) scale. OQPT has been shown to yield a reliable measure of English knowledge ability (Wistner et al., 2009). Based on the results of this test, only those whose scores fell within the range of 28 to 36 were selected as legitimate participants. To make sure that the test was reliable for the context of the current study, it was piloted on 30 EFL learners having similar characteristics to the main participants and Cronbach's Alpha was carried out. The results showed that the test had an index of .79, which is considered satisfactory.

Writing Motivation Questionnaire (WMQ)

The WMQ, administered as pretest and posttest, was developed and validated by Graham et al. (2022). This instrument measures learners' writing motivation via 28 items on a four-point Likert scale ranging from not true at all (1) to very true (4). The questionnaire addresses seven motives for writing motivation including 1) curiosity, 2) involvement labelled as the intrinsic factor; 3) grades, 4) competition, and 5) social recognition, identified as extrinsic reasons; 6) emotional regulation, 7) relief from boredom, tapping into self-regulatory reasons. Each one of the motives is measured by 4 items. Graham et al. (2022) reported satisfactory indices for the validity and reliability of the instrument. However, since reliability is sample-dependent, this instrument was piloted on 30 EFL learners having similar characteristics to the main participants and Cronbach's Alpha was run. The results yielded an index of .83, which is considered acceptable.

Semi-structured Interviews

A set of semi-structured interview questions were prepared to collect data on learners' perceptions concerning the contributions of QTM towards their writing motivation. The interview questions were developed based on the literature related to the QTM; moreover, research on writing motivation was reviewed, which helped set the ground for the first draft of questions. This was followed by the discussion of the tentative questions in an expert panel. This group was made up of three university professors holding a PhD in TEFL. The aim was to make sure that each question was relevant to the objectives of the interview, as well as its compatibility with the previous research. Accordingly, required modifications were done. Also,

the newly developed questions were piloted on 3 EFL learners, the aim of which was to remove any source of vagueness and improve the readability and clarity of the questions. Finally, a list of four interview questions was prepared (See Appendix).

Procedure

Initially, the QOPT and WMQ were piloted on 30 EFL learners and Cronbach's Alpha was run to assure their internal consistency for the present research context. Next, the QOPT was given to 196 EFL learners at the pre-intermediate level and 78 participants whose scores fell within the range of 28-36 were selected in line with the instructions available in QOPT manual. The 78 selected learners were placed into two groups based on convenience sampling procedures. The first group was assigned as the experimental group (N=37) and another group as the control group (N=41). Following that, the WMQ was administered to the two groups as pretest. Next, the experimental group received QTM as treatment.

To implement QTM, the EELDRC model proposed by DePorter and Hernacki (1999) was adopted. At the Enrol phase, the teacher used pictures and video clips, as well as reading content relevant to the writing topic to awaken learners' curiosity. In the Experience phase, pre-writing discussion questions were used to activate learners' background information and make them ready for the writing. During the Label stage, graphics, and posters were drawn upon to teach the lexical items. At the Demonstrate stage, the teacher asked the learners to do the writing either individually or in pairs and consult the net for more information to do the writing assignments. At the Review stage, the learners were provided with the feedback they preferred and asked to correct their writing errors. They were given the choice to check their errors either individually or in pairs or groups or consulting the teacher. Moreover, they were given a parallel writing topic to write about at home to receive extra practice. At the Celebrate stage, the teacher provided appreciation for students' efforts. During the whole period of practicing writing light classical music was performed.

As for the control group, the conventional process writing instruction was practiced. In so doing, the stages of drafting, revising, redrafting, and the final product were in place. The whole treatment for both groups lasted for 15 sessions. At the end of the treatment, the WMQ was given to both groups as posttest. Moreover, 15 participants selected randomly from among the experimental group learners attended semi-structured interviews to probe into their perceptions towards the effectiveness of QTM for improving their writing motivation.

Data Analysis

To analyse the quantitative data, initially it was decided to run One-way ANCOVA. However, since the assumption of linearity and homogeneity of regression slopes were not met, gain scores were computed and Mann-Whitney U Test was used. In the case of the qualitative data, the study drew on the six-stage thematic analysis developed by Braun and Clarke (2006). The stages are as follows (Braun & Clarke, 2006, p. 87): 1) Getting familiar with the data, 2) Generating initial codes, 3) Searching for the themes, 4) Reviewing themes, 5) Defining and naming the themes, 6) Writing up the report. To make sure that the analysis was reliable, a research assistant was involved in the thematic analysis (Hsieh & Shannon, 2005). To this end, all the interview items and contents were carefully read to obtain sufficient familiarity with the data. Also, an attempt was made to take the readers' first impressions of the data by taking

some notes. Then, in order to reduce the data, data coding and data categorization were carried out. This was followed by the co-researcher's separate analysis of the data in a similar manner. Finally, both researcher and assistant had a meeting to spot and resolve any incompatibility between the results obtained by the two individuals. Moreover, drawing on Holsti's (1969) coefficient of reliability, rater agreement was also calculated ($r=0.88$), which was found to be an acceptable level of agreement. To increase the analysis credibility, member checking was also performed (Nassaji, 2020). To this end, the results were discussed with five participants to make sure that the interpretations had been done properly.

Results

Addressing the First Research Question

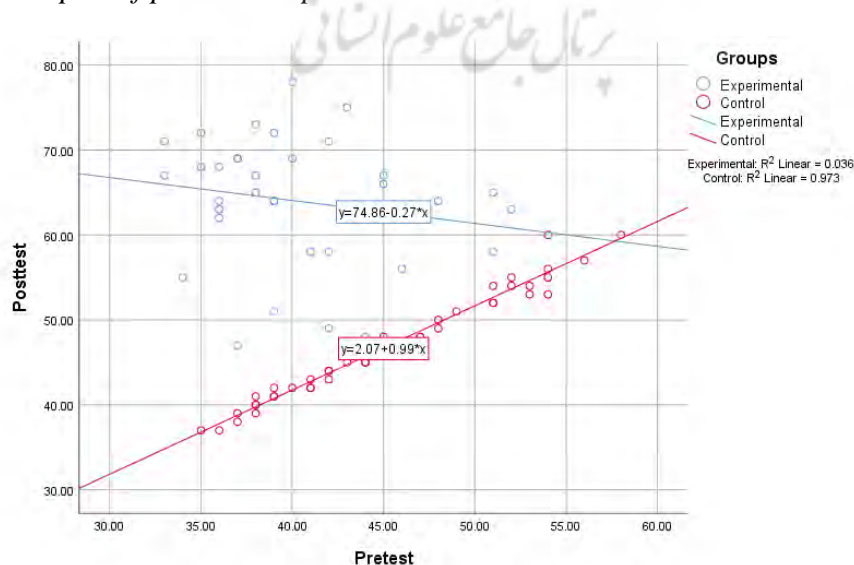
To examine the significant effect of QTM on writing motivation, it was initially decided to consider the pretest scores of the two groups as covariate and run One-way ANCOVA. To apply this test, a number of assumptions need to be met. The first assumption is normality, which was checked via inspecting the Skewness and Kurtosis ratios (Pallant, 2011). Table 1 displays the results of descriptive statistics along with Skewness and Kurtosis values for the pretest and posttest scores.

Table 1. Descriptive Statistics for the Pretest and Posttest Scores

	N	Minimum	Maximum	Mean	SD	Variance	Skewness	Kurtosis		
								Statistic	Std. Error	Statistic
Pretest Experimental	37	33.00	52.00	40.72	5.21	27.20	.56	.38	-.57	.75
Pretest Control	41	35.00	58.00	45.26	6.53	42.65	.22	.36	-1.26	.72
Posttest Experimental	37	47.00	78.00	63.86	7.39	54.73	-.62	.38	.16	.75
Posttest Control	41	37.00	60.00	46.97	6.56	43.12	.30	.36	-1.04	.72
Valid N (listwise)	37									

As noticed in Table 1, the Skewness and Kurtosis ratios fell within the range of ± 1.96 , indicating that the data sets were normally distributed (Tabachnick & Fidell, 2007). Another assumption is linearity, which was checked by consulting the scatterplot (Figure 1).

Figure 1 Scatterplot of pretest and posttest scores



As Figure 1 exhibits, lines for the variables have formed a curvilinear shape indicating that the assumption of linearity is violated (Pallant, 2011). Accordingly, gain scores were computed by subtracting the pretests from posttests. Table 2 displays the results of descriptive statistics for the gain scores of the two groups along with Skewness and Kurtosis values.

Table 2. Descriptive Statistics for the Pretest and Posttest Gain Scores

	N	Minimum	Maximum	Mean	SD	Variance	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Std. Error
Gain Experimental	37	4.00	38.00	23.13	9.82	96.62	-.25	.38
Gain Control	41	1.00	6.00	1.70	1.07	1.16	1.25	.36
Valid N (listwise)	37							

As shown in Table 2, the Skewness and Kurtosis ratios lay out of the range of +/- 1.96, indicating that the data sets were not normally distributed (Tabachnick & Fidell, 2007). Thus, the Mann-Whitney U Test, as the non-parametric equivalent of independent samples t-test, was run. Table 3 presents the respective results.

Table 3. Results of Mann-Whitney U Test

Gain Scores	
Mann-Whitney U	1.000
Wilcoxon W	862.000
Z	-7.655
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Groups

As exhibited in Table 3, the significant value equalled .00, which is lower than 0.001. Thus, it can be inferred that there was a statistically significant difference between the gain scores of the experimental and control group. Moreover, as presented in Table 2, the score mean of the experimental group is higher than that of the control group ($23.13 > 1.70$). Therefore, it can be concluded that the implementation of QTM has had a positively significant effect on EFL learners' writing motivation.

Addressing the Second Research Question

Table 4 presents the themes for the perceptions of EFL learners towards the effectiveness of QTM for improving their writing motivation along with the corresponding frequencies and percentages.

Table 4. Themes for the Perceptions of EFL Learners towards the Effectiveness of QTM

No	Theme	Frequency	Percentage
1	Satisfaction	14	93.24%
2	Enjoyment	12	79.92%
3	Engagement	10	66.60%
4	Personalization	9	59.94%
5	Lowering anxiety	8	53.28%

As for the first theme, *satisfaction*, with a frequency of 14 (93.24%), one of the learners noted that:

Because in this course the teacher gave a lot of attention to what I was doing, I felt really satisfied with the writing I did. I mean, the teacher was always around asking questions and providing help. Also, our teacher gave us feedback whenever we wanted and the whole course was really satisfying. I think that the whole course gave me more motivation for writing.

With regard to the second theme, *enjoyment*, yielding a frequency of 12 (79.92%), one of the interviewees mentioned that:

I really liked the course and enjoyed it a lot compared to our previous writing exercises. There was a lot of fun and enjoyment because there was music and also, we had a chance to draw at sometimes. I think it was really fun and not only me but all the other enjoyed it a lot and was motivated to do writing.

With respect to the third theme, *engagement*, gaining a frequency of 10 (66.60%), one of the participants commented that:

I am not really into writing much, but in this course, I was really involved in the writing assignments and more motivated for writing. It was quite easy for me to think up ideas to write about. Also, the teacher helped us with questions and made it easy for us with helping us to remember ideas. Overall, I spent more time on writing and could concentrate more when I was doing the writing assignments.

Regarding the fourth theme, *personalization*, with a frequency of 9 (59.94%), one of the learners said:

The teacher came to me a lot and asked me what I liked and what I disliked. Also, our teacher asked us about the kind of feedback we wanted for writing and each student could choose her own individual way of learning. This made me really motivated to do writing as the teacher gave us personal attention.

With respect to the fifth theme, *lowering anxiety*, with a frequency of 8 (53.28%), one of the interviewees held that:

I did not usually feel comfortable with writing because I was always afraid of making mistakes and when we were writing all students were quiet. But, in this course I did not feel very anxious because our teacher gave us some more assignments to repeat the exercises and corrected our mistakes several times. The teacher also played music when we were writing and it made the class atmosphere more relaxed. All these motivated me more for writing.

Discussion

This study examined the effect of QTM on writing motivation. The results of Mann-Whitney U Test indicated that the implementation of QTM significantly affected EFL learners' writing motivation. The results of thematic analysis showed five themes consisting of satisfaction, enjoyment, engagement, personalization, and lowering anxiety as the factors conducive to improving writing motivation due to QTM implementation. Moreover, the qualitative results substantiated the quantitative findings.

The results of the quantitative phase confirm the findings of previous investigations (e.g., Khozaei et al., 2022; Mantra et al., 2019) concerning the enhancement of students' motivation as a consequence of QTM implementation. Similar to the findings of this study, Khozaei et al. (2022) found that QTM improved motivation to learn. Likewise, Mantra et al.'s (2019) results revealed the contributions of QTM to students' motivation. Moreover, the results of the present study are in congruence with Akihary and Apituley's (2022) findings in regard to the contributions of QTM towards learning motivation. In a similar vein, the findings of the current

provide evidence for the interrelationships between QTM and writing instruction as shown by Arditya and Syamsi (2019).

The results of qualitative analysis enrich the literature concerning the way satisfaction, enjoyment, engagement, personalization, and lowering anxiety are related to motivation. As Keller (2010) maintains, satisfaction is one of the core elements which can help boost learners' motivation. Moreover, the results of this study echo Yu et al.'s (2019) findings concerning the interconnection between motivation and engagement. The findings are also in congruence with Dewaele et al. (2022) in regard to the way enjoyment and anxiety, are associated with motivation.

In essence, the QTM used in the current study has been conducive to improving learners' writing motivation as the QTM has boosted learners' satisfaction, enjoyment, and engagement; moreover, the QTM has lowered their anxiety. Furthermore, since QTM is a learner-centred approach, the focus has been on individual learners providing chances for personalized teaching and learning. This personalization has possibly displayed a sense of appreciation to learners' efforts due to the individualized attention they have received, which has consequently improved their writing motivation. As Soraya et al. (2017) contend, teachers' appreciation of learners' efforts can foster motivation.

The results of the present study can be justified based on the merits of QTM as compared to other methods of writing instruction such as the process approach and genre-based instruction. In essence, the core features of QTM are the elements of integration and the centrality of learners' needs and preferences in the teaching-learning process (Deporter et al. 1999). In other words, QTM does not reject other methods of instruction; but considers their implementation based on the learners' preferences and needs. Moreover, this method holds the potential to draw on various methods of instruction concomitantly during a single course (Arditya & Syamsi, 2019). For instance, in a writing course, in alignment with learners' preferences and needs, the teacher may combine the stages involved in the process approach to writing as well as genre-based instruction to yield the most favourable teaching and learning outcomes. When teachers adopt a single method of instruction for writing such as process approach or genre-based instruction, they are incorporating the one-size-fits-all approach to teaching and learning. However, with QTM the moment-by-moment nature of the learning-teaching context is taken into account. Consequently, the teacher can steer the teaching-learning process to the best possible outcome while considering the idiosyncrasies of the host of learners as well as the individual learners in the classroom (Mantra et al., 2019).

Overall, the results of the current study confirm and are confirmed by the results of previous studies concerning the interrelationships between the teaching methods and learners' motivation. Moreover, the findings help explain how learners' writing motivation is boosted as a consequence of QTM implementation from learners' perspectives. The results can provide EFL teachers with awareness concerning the effectiveness of QTM; however, such results cannot be taken as conclusive and future investigations are required to shed more light in terms of how QTM can enhance learners' writing motivation.

Conclusion

Based on the findings of this study, EFL teachers are encouraged to employ QTM to boost learners' writing motivation. More specifically, the results are expected to help students who lack motivation. Therefore, if teachers typically employ boring and monotonous teaching methods in which a single method of instruction such as process writing or genre-based instruction are practiced without considering the individuality of learners and the learning context, they should examine different approaches to language teaching which seem more interesting to the students such as quantum teaching. Quantum teaching model helps teachers

to motivate learners and teach different contents in entertaining ways. Syllabus designers can incorporate QTM elements and stages in their prospective syllabi to help improve EFL learners' writing motivation. Moreover, such results can be used by teacher educators and trainers in professional development programs to provide EFL teachers with knowledge and skills required for QTM implementation. In a similar vein, EFL learners can be more willing to participate in courses running based on QTM since the findings of this study have proved beneficial for raising writing motivation.

This study had some limitations which can be addressed by future research. Firstly, this study did not include male learners as only female participants were available. Accordingly, a similar study can be conducted with male learners. In this study, teachers' perceptions towards the effectiveness of QTM were not addressed as there was only one teacher taking part in the study. Thus, another large-scale study can use interviews to tap into QTM contributions towards improving writing motivation from teachers' vantage point. Moreover, other researcher can use an exploratory design to investigate the problems and challenges associated with QTM by using interviews and observation protocols.

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Appendix

Semi-structured Interview Questions

- What is your general idea about the teaching method used for writing during this course?
- What aspects of the course did you enjoy most/least? Why?
- Did the course help improve your writing? Please explain.
- Did the course make you more motivated for writing? Please explain.

