

Transforming Student Writing: The Predictive Role Of Wiki Technology In Collaborative Learning

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Introduction: The study examines the specific methods that can be considered to improve writing competence of students using wiki technology. The literature in the past has demonstrated that wiki technology has been approved to enhance writing skills of the learners. Several studies have portrayed wiki technology as an environment that creates interaction among the learners and opportunity to have autonomous and authentic oversight on their writing skills through various tasks.

Methods: A quantitative method has been applied in the study to understand in a confirmatory way the relationship between wiki technology strategies and improved writing competencies of students. In context of this relationship, the study is going to produce a model that can be considered to have a checklist of the specific methods that can be invoked towards the improvement of writing competence of students using wiki-technology.

Results: The results confirmed the hypothesis that there exist predictive effects of specific methods linked to wiki technology on writing proficiencies of the students. The model results have confirmed the suitability of the identified methods especially collaborative learning environment, technology and digitalization, interactive dynamic communication, interpersonal information exchange, peer review correction, and interactive learning environment.

Discussions: The findings corroborated with past studies especially on the criteria for collaborative learning environment, authentic learning experience, and interpersonal information exchange to have significant relationship with writing competencies in the perspective of quality, accuracy, diction, grammar, and coherence.

Conclusion: The need to invest on wiki technology is something commendable for the foreign language department at the Tashkent University of Information Technologies named after Muhammad Al-Khwarizmi.

Keywords: Collaborative Learning, Wiki Technology, Accuracy, Quality, Writing Competencies

1.0 Introduction

In this study the focus is to examine the specific methods adopted to improve writing competence of students using Wiki Technology. The study by Nurul (2015) examined the use of Wiki technology towards the development of writing skills for students and noted that its positive contribution to learning has been acceptable to both teachers and learners. Further, the study indicated that Wiki technology has specific tools that when incorporated in the learning processes such as writing improve the competencies of the students. For instance, due to the rise in the application of smart phones, social networking, and advancements in the website it has continued to magnify the communication of the students into vastly engaging in writing. Coyle (2017) supporting Nurul (2015) held that Wiki technology subjects learners into a communication phenomenon that involves text messages, instant messages, e-mail, scribbling in web space such as Wiki, and tweeting. Chen (2016) affirming the above stated that wiki serves as an online space that permeates multiple learners to write, upload photos or images, edit, draw graphics among others; and all these providing avenues for the improved writing skills of the

students (See Nurul, 2015). From the above assertions it is evident that Wiki by itself is considered to have prompts that compel multiple users to engage in writing and that means it can be a useful tool to sharpen the writing skills of the learners as the subjects. The findings also reveal that Wiki space has instruments that create interactive communication between the subjects which widely requires the need for writing. In other words, the nature of Wiki is to build communication channels that invite users to write their messages and in turn read replies or feedbacks. For that reason, it would be claimed that Wiki technology not only improves writing skills of the learners, for example, but also their capacity to comprehend the content of the message. Therefore, it can be deduced that wiki technology has inbuilt mechanisms that propel learners to rely on writing to build concepts and messages intended for different needs across the users.

The study by Alshumaimeri (2016) examined the impact wiki technology has on foreign language learners in relation to writing performance. For instance, it was stated that wikis provide collaborative tools that permeate pre-defined groups to engage in editing one another's works. However, contrary to the above views Coniam and Mak (2015) held that despite wikis been adopted globally in a majority of classrooms to develop writing skills of learners, studies prove that it does not always improve the accuracy and quality of writing skills among the students. Although, Chen et al. (2015) supported by Franco (2016) indicated that inasmuch as wikis can enhance the English writing of students there should be caution due to the need to improve its dimensions like collaborative assignments that have far reaching outcomes on the students. Therefore, concurring to the above assertions the assessment by Alshumaimeri (2016) was articulate on the role wiki technology has in the development of writing skills of students within a collaborative learning environment. The study applied the quasi experimental design on two groups with collaborative and non-collaborative environments in place. The findings indicated that for collaborative learning environments the use of wiki led to better scores among students in terms of writing quality and accuracy. Therefore, the collaborative learning systems linked to wiki pedagogical protocols were proven to offer effective technological instruments for the enhancement of writing performance of the students. Supporting the assertions above, Kuteeva (2016) found that rendering wiki technology to be more collaborative led the students to improve on grammatical correctness as well as attainment of structural coherence. In addition, a collaborative learning process in wiki technology was reported to improve quality and accuracy in terms of writing by the students. Similar position is evident in the study by Reo (2016) who found that wiki when facilitated in a collaborative environment allowed students to interact more without the supervision of the teacher including been much comfortable in presenting their opinions and comments about the work of their peers and discussion of new ideas. In agreement to the views above, Miyazoe and Anderson (2017) noted that collaborative learning environments in the adoption of wiki and its procedures motivates the students hence rendering the learning environment to be more appealing. As a result, the increased and appealing learning atmosphere by wiki is considered to impact positively on the learners by improving their skills in writing. On basis of the findings above the phenomenon for collaborative learning has been deemed appropriate and this is considered as one of the specific methods that should be sought in improving writing competence of students using wiki technology. Therefore, the resource mobilization should endeavor to enrich the collaborative learning environment within the various perspectives that teachers use to coordinate writing competencies of the learners through wiki technology. For that reason, one of the explorations in the study is how best to integrate wiki technology with collaborative learning resources to attain sustainable writing competencies of the learners among others.

According to Kessler (2017) wiki technology can assist teachers to create an autonomous environment for learners. For instance, since wiki is student-centric it provides learners an opportunity to work collaboratively without the intervention of the teachers. Moreover, Cowan et al. (2018) concur with the above affirmations in that wikis are capable to facilitate an interactive environment for the learners. Supporting similar views Reo (2016) affirmed that wiki enables students to interact with one another at the same time work collaboratively with possibility to comment, discuss on edits, and formulate new ideas about a subject matter. In connection to the same findings, Xiao and Lucking (2018) performed a study to understand and make comparison of the impact of wiki-centered peer assessment criteria among university students and how it impacted on performance in writing skills. In the outcomes, the study found that the learners classified in the experimental group depicted much improvement towards their writing skills compared to those classified under the control group. In addition, it was decoded that learners in the experimental group reported much satisfaction with the peer assessment criteria supported by wiki dimensions. Further to the findings above Franco (2016) evaluated the participation of students in wikis and whether the initiative improved their writing skills given the application of the digital collaborative

learning strategies. As such, the outcomes depicted that learners in an effective manner shared responsibility across the peers including demonstrating more independence from the teacher. Thus, the results asserted that as the students emerged much autonomous due to the flexibility provided by the wikis, they also benefited from the capacity to provide and receive feedback from peers. The findings above re-assert the positive effects drawing from wiki technology when it comes to the writing competence of the students. One of the observations is on the fact that wiki stimulates interaction of the students and rendering the subjects to oversight the learning process without the teachers. Thus, creating an autonomous and authentic or rather spontaneous involvement of the learners in correcting the mistakes of their peers based on the tasks at stake such as writing. Therefore, wiki creates an environment for self-assessment which is more integral as opposed to the one imposed by the supervision of the teachers.

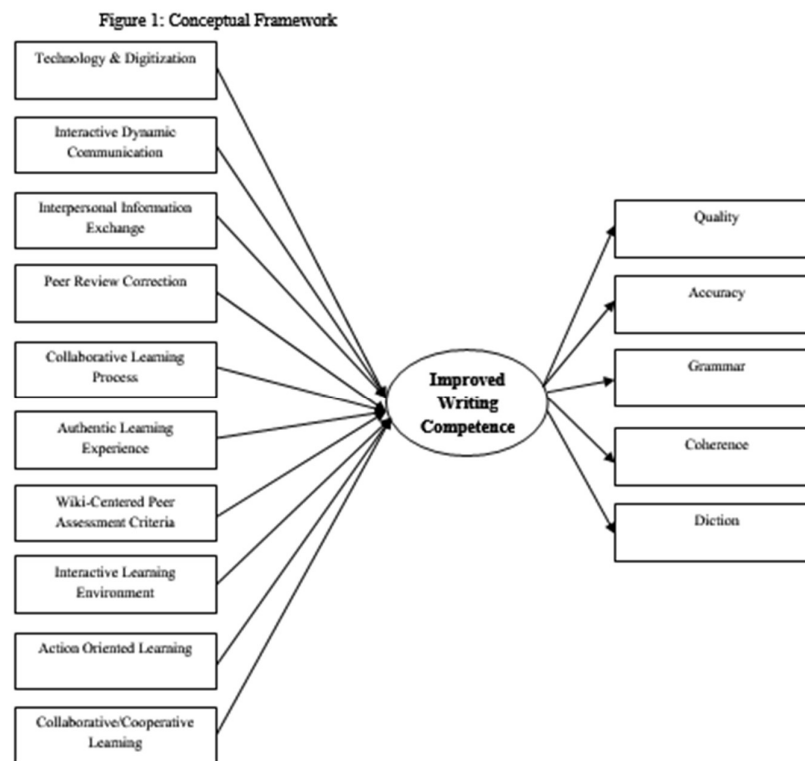
In a different context, the review by Chang (2015) examined the benefits of wikis on EFL learning on the perspective of group work. The findings indicated that wiki-led group work assisted students to interact more thus motivating them to learn together and complete tasks in the EFL courses. Moreover, Chang (2015) found that EFL learners by virtue of applying wikis reported better performance in relation to reading, listening, and writing abilities. The wiki environment was reported to create a favorable attitude among the learners in context of cooperative learning and improvements in reading and writing abilities in English, for example. As such, the cohort reported to have comfort in the utilization of wikis including the wiki-led learning environment as well as the ability to complete assignments. In line with the views above, Bubas et al. (2017) examined the significant impact of wiki in English writing and it was established that it assisted in promulgating an innovative environment of learning where the learners were engaged and interested in the process of learning. As a result, the environment triggered much improvement in the development of writing skills, vocabulary, including providing the students with the capacity to learn from one another. In tandem with the findings above, Richardson (2016) noted that by virtue of using wiki learners potentially engage in writing as a social phenomenon while Kuteeva (2016) established that the use of wiki when it came to writing activities rendered students to pay more attention to the correctness of their grammar as well as structural coherence. In a similar context, Yates (2018) first noted on constructivism theory in the sense that learners develop knowledge via action and experience and then engage in deliberation and reconciliation of news idea with the past ones. As such, the study applied constructivism to comprehend the impact of wiki technology in regard to EFL learning; for instance, an assessment was done on the behaviour of students in the event of the completion of a wiki assignment that was formulated within a constructivist framework. The assessment was meant to establish whether this environment increased collaboration among students including attaining classroom objectives for reading and writing in the ELF class. The results indicated that wiki designed in a constructivist framework potentially enhanced collaborative learning especially improvement in writing competencies. In conjunction with the above study, Lin (2015) analyzed the effectiveness in the use of wikis to support collaborative writing, language competence, as well as social interaction. The outcome depicted that collaborative writing led to the improvement of English awareness as well as writing proficiencies of the college EFL students. Similarly, Kennedy (2015) upon analysis of the effects of wiki among university students in terms of the writing skills enhancement found that underlying technological applications led to the success of the students. For example, skills in writing composition were reported to improve through wiki technology environment. However, contradicting the views above, the study by Alshalan (2015) attained inconclusive results in the fact that wiki led to improvement of writing skills i.e. quality and accuracy of the EFL students. The above studies indicate the implications of wiki technology in impacting on the writing capacities of students and that anticipates the specific methods that can be considered to enhance the same (writing competence) of learners. The literature thus far indicates that scholars have found wiki technology to stimulate learning at the same time increasing the competencies of the students towards writing skills. Of concern is the type of environment governing the implementation and coordination of wiki environment since this would be the basis or rather the defining factor towards the modalities that should be sought to render wiki technology to improve writing skills of students.

According to Godwin-Jones (2017) wikis engage learners in intensive collaboration hence they are expected to learn from each other at the same time engage in collaborative writing. Supporting the views above, Mackey (2017) held that wikis can be adapted to subject students to collaborative writing since the same edifies online communities where learners work as a team to attain common goals in the pretext of their assignments. For instance, each group is expected to generate their shared knowledge that has benefit to every participant/student.

In line with the same thoughts, Lipponen (2016) indicated that the merits of wikis when detailed for collaborative work promotes peer interaction at the same time facilitates the distribution as well as sharing of expertise and knowledge among the learners. Hewitt and Scardamalia (2016) stated that in a wiki environment a given exercise turns out as a meaningful task that cannot be handled by a single student but rather requires working together of the learners. For instance, in a traditional classroom setting students do not have the space and time to read and capitalize on the task of each other; rather wiki technology promotes virtual collaborative environments for the learners. Agreeing to the above views, Matthew and Felvegi (2018) evaluated authentic writing via the usage of wikis as collaborative writing platforms and noted that participation in ESL assignments or programmes led to authentic and proficient writing skills. In concurrence, Lee (2017) based on a study applied to university students evaluated the role of wiki on collaborative writing. The results demonstrated that the development and integration of wikis positively impacted on the writing skills of the students via collaborative engagement. In addition, the presence of peer feedback was also reported to have positive effect on L2 writing development in the sense in which learners not only supported each other to formulate content in a systematic manner but also participated in error corrections for the purpose of language accuracy. Overall, the findings above reveal that wiki technology offers suitable channels that enhance the writing skills of the learners especially by creating an autonomous environment and peer reviewed input. Therefore, the learners as it would appear from the literature is that they become more involved in the attainment of the goals laid out in their programmes especially improvement of writing skills.

1.1 Conceptual Framework

The envisaged conceptual framework is meant to provide a checklist for specific methods of improving writing competencies of students using wiki technology. The illustration is as captured in Figure 1 below:



Source: (Author, 2023)

The conceptual framework shown in Figure 1 above has been developed to provide sound criteria that can be used to formulate the specific methods that may be sought to improve writing competence of students using wiki technology. Therefore, on the left side of the model framework are the variables to be used to measure the specific methods and the right side been the constructs for the improved writing competence. Moreover, the study seeks to rely on the conceptual framework to first assess the validity of the specific methods which form the predictor variables and then further justification of the same considered in light of their impact on improved

writing competence, the latter been the dependent/predicted variable.

1.2 Research Question

In developing the study, the following research question has been addressed:

RQ: What are the specific methods that can be tapped to improve writing competencies of students using wiki technology?

1.3 Research Objectives

Further, the study seeks to address the following objectives:

- a) To highlight/identify the specific methods that may sought to enhance writing competence of students using Wiki Technology
- b) To confirm the positive impact of specific methods linking to Wiki Technology on proficiency in writing among students
- c) To recommend improvement in the use of Wiki Technology to incorporate sustainable strategies that will improve writing competence of students

1.4 Significance of the Study

The study has relevance to scholars and practitioners in the sense in which it highlights the gaps and strengths underlying the adoption of Wiki Technology as a channel for improve writing competence among students. Therefore, this study presents a critical analysis of the issues supported by user feedback which has been used to provide first-hand information on the effectiveness of Wiki Technology as a pedagogical instrument. For the scholars the current study builds a conceptual framework around theories and models on writing competence of students and whether Wiki Technology underlying methods fit in. In this regard, the findings of the study have been supported by user feedback and hypotheses testing which render it to be a valuable library resource on building knowledge on the role of Wiki Technology towards improved writing competence of students.

2.0 Methods

2.1 Participants

The participants in the study were foreign language students at Tashkent University of Information Technologies named After Muhammad Al-Khwarizmi currently enrolled for English, German, or French language courses. Thus, a cohort of 50 students was invited to take part in an online survey lodged in Google Forms platform. The survey was administered on cross-sectional time horizons hence there were no follow-ups required since the one-time engagement in the feedback process was enough to provide necessary insights for hypothesis testing among others. The entire survey and the underlying feedback were aimed to generate insights on the validity of the specific methods envisaged and their positive effect on improved writing competence of the students. The researcher relied on non-probabilistic sampling and then convenience strategy was sought the most. Thus, the participants voluntarily participated in the survey and depending on their availability.

2.2 Research Design

The preferred design for the study was a confirmatory research also referred to as hypothesis testing. For instance, in this study the key hypothesis is that:

Ha: Wiki technology strategies have positive impact on improved writing competencies of students

Ho: There lacks positive connection between wiki technology strategies and improved writing competencies of students

Worth noting, “wiki technology strategies” also denote the specific methods of improving writing competencies as per this study. According to Russell and Russell (2013) confirmatory design is whereby development of knowledge is sought in a situation where the researcher has pre-hand understanding on the outcome. For instance, in this study the researcher has developed a conceptual model linking specific methods aligned to wiki technology and improved writing competence and the mission is to establish if the relationships can be supported by facts. The facts are going to be drawn from the perceptions of foreign language students on account of the issues raised in the survey.

2.3 Procedures, Material, and Data Collection

As mentioned a closed-ended survey was coordinated among foreign language students at Tashkent University of Information Technologies named After Muhammad Al-Khwarizmi where the participants were invited to respond to an online survey that lasted for not more than ten minutes. Upon consent to participate and understanding of the provisions such as the right to withdraw from the process among others the results were then exported to an Excel program for analysis. Google Analytics was used to coordinate the survey and the participants

were only required to login and complete the survey.

3.0 Results

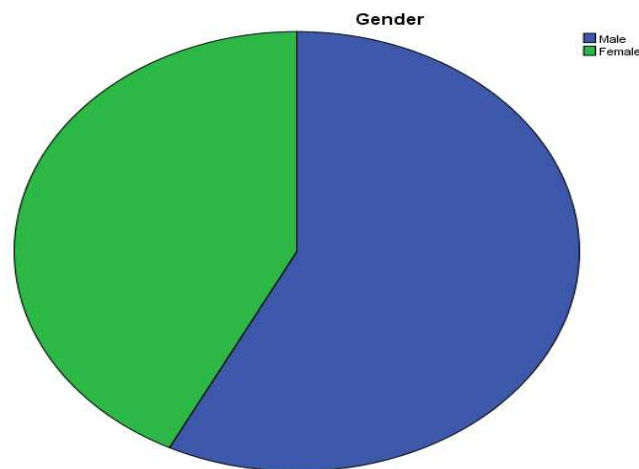
The results from the survey with the participants have been captured in this section with much focus to validate the specific methods of improving writing competencies using wiki technology.

3.1 Demographic Information

The demographic information of the participants consisted of gender, age, and language course and each of these factors can be considered to influence the perceptions held on specific methods of improving writing competences among students using wiki technology. Later, the mediating effects of the demographic factors have actually been formulated under the test of significance.

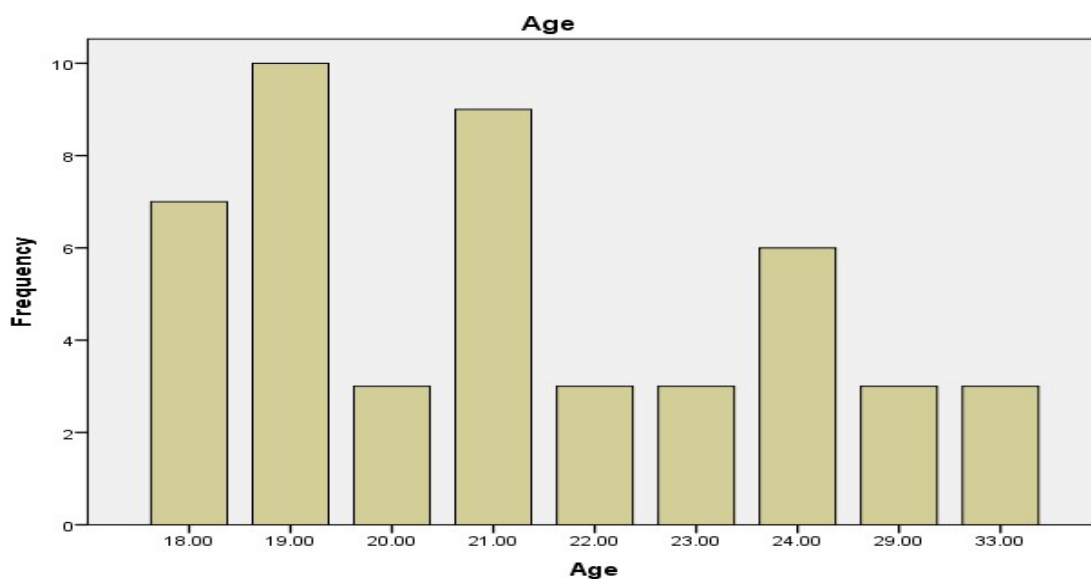
For instance, in terms of gender 57.4% of the samples were males while 42.6% were females as shown in Figure 2 below.

Figure 2: Gender of the participants



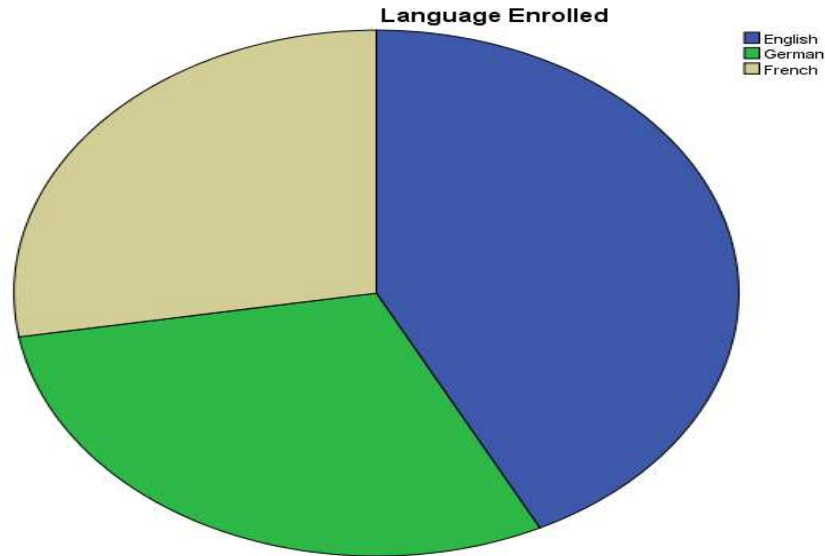
Next, is the age of the participants whereby in the minimum the sampled participants were at the age of 18 and the maximum age been 33; on the other hand, the mean age was 22 years. Figure 3 below captures the trend for age.

Figure 3: Age of the participants



Lastly, the languages courses the participants are currently enrolled indicated that 42.6% are in the English language, 29.8% German, while 27.7% been French module. Figure 4 below captures the same trend using a pie-chart.

Figure 4: Language course enrolled



3.2 Descriptive statistics, Reliability, and Validity

The reliability statistics was examined using Cronbach's Alpha score as reported in Table 1 below.

Table 1: Reliability of survey results

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded ^a	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.708	16

The results indicate that there are 47 valid cases meaning this is the number of participants that successfully responded to the survey out of the targeted 50. Then, the Cronbach's Alpha is at .708 meaning the survey used to address the core issues was 70.8% reliable and this is the recommended threshold. In that regard, the survey i.e. the measuring constructs for improved writing competence and specific methods linked to wiki technology had internal consistency.

The validity of the constructs for specific methods linked to wiki technology that may be used to enhance writing competencies of the participants was examined using factor analysis as reported in Table 2 below.

Table 2: Factor analysis on specific methods for improving writing competencies using wiki technology

Communalities

Specific Methods	Initial	Extraction
Technology and Digitization	1.000	.445
Interactive Dynamic Communication	1.000	.799
Interpersonal Information Exchange	1.000	.666
Peer Review Correction	1.000	.485

Collaborative Learning Process	1.000	.726
Authentic Learning Experience	1.000	.664
Wiki-Centered Peer Assessment Criteria	1.000	.719
Interactive Learning Environment	1.000	.476
Action Oriented Learning	1.000	.784
Collaborative Learning	1.000	.684
Cooperative Learning	1.000	.560

Extraction Method: Principal Component Analysis.

The results shown in Table 2 above reveal that each of the constructs for specific methods of improving writing competencies using wiki technology have attained validity given the extraction values are above 0.4 or 40% as the recommended threshold. Therefore, each of them forms a foundation that can be used to ensure the wiki environment benefits the students towards improvement of their writing competencies. The same results confirm that the new approaches form a sustainable proxy for improving writing competencies of students using wiki technology. Therefore, it would be worthwhile to establish whether the identified specific methods have positive impact on writing competencies in the domain of quality, accuracy, coherence, grammar, and diction.

3.3 Test of Significance

The first review is to establish whether there exists significant predictive effects in the specific methods of improving writing competencies of students using wiki technology as reported in Table 3 below. The writing competency of interest is quality

Table 3: Relationship of specific methods in using wiki technology and improved writing competencies i.e. Quality

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.552 ^a	.405	.187	1.22778	2.417

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.154	11	2.105	1.396	.018 ^b
	Residual	52.761	35	1.507		
	Total	75.915	46			

a. Dependent Variable: Quality

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.621	1.247		3.707	.001		
	Technology and Digitization	.392	.138	.409	-2.842	.007	.957	1.045
	Interactive Dynamic Communication	.140	.149	.173	-.940	.054	.585	1.710
	Interpersonal Information Exchange	.154	.130	.189	-1.190	.042	.408	1.269
	Peer Review Correction	.161	.143	.172	-1.127	.007	.550	1.176
	Collaborative Learning Process	.081	.135	.087	.596	.555	.937	1.067
	Authentic Learning Experience	-.047	.145	-.050	-.326	.747	.854	1.171

Wiki-Centered Peer Assessment Criteria	-.060	.121	-.074	-.500	.620	.898	1.114
Interactive Learning Environment	.341	.149	.352	2.291	.028	.843	1.187
Action Oriented Learning	.085	.166	.093	.515	.610	.604	1.655
Collaborative Learning	.035	.122	.045	-.288	.005	.798	1.252
Cooperative Learning	-.040	.157	-.038	-.254	.801	.866	1.155

a. **Dependent Variable: Quality**

The results presented in Table 3 above reveal the relationship between specific methods that align to the use of wiki technology and quality as a writing competence. Foremost, the R² reveals that 40.5% of the cases for specific methods explain quality factor in improved writing competence of the students which means there are considerations that are not in the model. Nonetheless, the entire model is significant considering the ANOVA (F = 1.396, Sig. = .018) results at 95% confidence interval. Therefore, the effects of the specific methods identified on improved writing competencies of the students cannot be overlooked in real life. The actual model further indicates that Technology and Digitization ($\beta = .409$, Sig. = .007), Interactive Dynamic Communication ($\beta = .173$, Sig. = .054), Interpersonal Information Exchange ($\beta = .189$, Sig. = .042), Peer Review Correction ($\beta = .172$, Sig. = .007), Interactive Learning Environment ($\beta = .352$, Sig. = .028), and Collaborative Learning ($\beta = .045$, Sig. = .005) are the main specific methods intertwined with wiki technology that have significant predictive effects on improved writing competencies in the context of quality at below 5% margin of error.

The next model results compares accuracy and the identified specific methods as reported in Table 4 below.

Table 4: Relationship of specific methods in using wiki technology and improved writing competencies i.e. Accuracy

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.883 ^a	.779	.710	.76991	2.254

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	73.168	11	6.652	11.221	.000 ^b
	Residual	20.747	35	.593		
	Total	93.915	46			

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.231	.782		4.133	.000		
	Technology and Digitization	.009	.086	.008	.104	.918	.957	1.045
	Interactive Dynamic Communication	.037	.093	.042	.400	.692	.585	1.710
	Interpersonal Information Exchange	.407	.081	.449	5.017	.000	.788	1.269
	Peer Review Correction	.020	.090	.019	.221	.827	.850	1.176
	Collaborative Learning Process	-.015	.085	-.014	-.176	.861	.937	1.067

Authentic Learning Experience	-.043	.091	-.041	-.477	.636	.854	1.171
Wiki-Centered Peer Assessment Criteria	.048	.076	.054	.640	.026	.898	1.114
Interactive Learning Environment	.024	.093	.022	.257	.799	.843	1.187
Action Oriented Learning	-.029	.104	-.029	-.284	.778	.604	1.655
Collaborative Learning	-.524	.077	-.607	-6.824	.000	.798	1.252
Cooperative Learning	-.002	.098	-.002	-.018	.986	.866	1.155

a. Dependent Variable: Accuracy

The results captured in Table 4 above reveal that the specific methods linking to wiki technology explain by 77.9% the trend for accuracy as a facet of improved writing competencies among the students. Thus, affirming that the model fit is strong. Moreover, the ANOVA ($F = 11.221$, $Sig. = .000$) further indicates that the effects from the specific methods towards accuracy are real and enforceable in real life when it comes to policy for improvement of writing competencies among students using wiki technology. The actual model also depicts that Interpersonal Information Exchange ($\beta = .449$, $Sig. = .000$), Wiki-Centered Peer Assessment Criteria ($\beta = .054$, $Sig. = .026$), and Collaborative Learning ($\beta = -.607$, $Sig. = .000$) are the main specific methods that prove to have significant predictive effects on accuracy as a component of improved writing competencies at 95% confidence interval.

The final model results present the relationship of other specific methods i.e. coherence, grammar, and diction and writing competencies as an average trend, as reported in Table 5 below. Table 5: Relationship of average specific methods in using wiki technology and improved writing competencies i.e. coherence, grammar, and diction with mediating effects of age, gender, and language course

Model Summary^c

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.010 ^a	.300	.022	.93065	.000	.004	1	45	.047	
2	.364 ^b	.133	.050	.89726	.132	2.137	3	42	.110	2.331

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.004	1	.004	.004	.047 ^b
	Residual	38.975	45	.866		
	Total	38.979	46			
2	Regression	5.166	4	1.291	1.604	.191 ^c
	Residual	33.813	42	.805		
	Total	38.979	46			

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.930	.749		3.914	.000		
	Specific Methods	.015	.226	.010	.067	.047	1.000	1.000
2	(Constant)	.898	1.161		.774	.443		
	Specific Methods	.137	.230	.090	.593	.556	.895	1.117
	Gender	-.003	.267	-.002	-.012	.990	.985	1.015
	Age	.088	.035	.389	2.524	.015	.869	1.151

Language Enrolled	-.158	.174	-.143	-.903	.371	.829	1.207
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a. Dependent Variable: Writing Competencies i.e. coherence, grammar, and diction

As per the results shown in Table 5 above it is evident that the mediating effects of gender, age, and language course do not have any significant influence on the relationship between specific methods or wiki technology strategies versus improved writing competencies in the context of coherence, grammar, and diction. Therefore, the mentioned demographic factors should not be considered as significant when deciding on the specific methods of improving writing competencies in using wiki technology. Nevertheless, the writing competencies conglomerate involving grammar, coherence, and diction proves to be significantly predicted by all the writing competencies as an average trend. The model is statistically significant at 95% confidence interval considering the ANOVA results ($F = .004$, $Sig. = .047$). Then, the actual model proves that average writing competencies ($\beta = .010$, $\beta = .047$) are significantly influenced by average writing competencies at below 5% margin of error.

On account of the above results the following can be deduced about the null and alternate hypothesis of the study:

Hypothesis	Expected Outcome	Actual Outcome
Ha: Wiki technology strategies have positive impact on improved writing competencies of students	Upheld/Confirmed	Confirmed
Ho: There lacks positive connection between wiki technology strategies and improved writing competencies of students	Rejected	Rejected

4.0 Discussion

The findings of the research from the survey with the students aimed to provide as much insight as possible on specific methods of improving writing competence of students using wiki technology. From the model framework and supported by literature specific methods were identified which included technology & digitization, interactive dynamic communication, interpersonal information exchange, and collaborative learning process just to mention a few. On the other hand, the improved writing competence was addressed using five pillars namely accuracy, grammar, coherence, diction, and quality. Foremost, the findings have demonstrated that all the facets for specific methods of improving writing using wiki technology are valid hence they can be fully utilized to enhance the writing competencies of the students enrolled in various language courses at Tashkent University of Information Technology named after Muhammad Al-Khwarizmi. The validity in the identified wiki technologies strategies are supported in the research by Bubas et al. (2017), Chang (2015), Alshumaimeri (2016), and Kuteeva (2016) in the sense in which the studies have found technology and digitalization, collaborative learning process, authentic learning experience, collaborative and cooperative learning, and peer review correction to have significant effect on improved writing competencies of the learners. Similarly, the validity and significant effects of the wiki technology strategies on writing competencies of the students has been fully supported in the empirical findings. The confirmed alternate hypothesis and the rejection of the null hypothesis proved that writing competencies of students are pillared on the specific methods aligned to wiki technology due to the positive and productive environment they create for the learners. The affirmations are corroborating to the literature by Richardson (2016), Cowan et al. (2018), Miyazoe and Anderson (2017), and Kuteeva (2016), and Yates (2018) where it was established that interpersonal information exchange and collaborative learning environment as outcomes of wiki technology enhance accuracy and quality aspects of the students' writing competencies. In the results, the model results have strongly depicted the role of peer review correction, interactive learning environment, peer assessment criteria, and collaborative learning on quality and accuracy with positive beta metrics reported across the results. The findings underscored the need for the identified methods or wiki technology strategies to be a basis for the students and teachers to attain positive results in the realm of improved writing competencies. The confirmed findings align to the literature by Franco (2016), Xiao and Lucking (2018), and Reo (2016) whereby it was indicted that that due to collaborative learning and wiki-centered peer assessment

criteria the students are capable to attain high results in terms of accuracy and quality in their writing exercises. Other studies confirmed by the above findings include Matthew and Felvegi (2018), Hewitt and Scardamalia (2016), and Mackey (2017) who affirmed the role of wiki-led collaborative learning process to enhance the writing proficiencies of the students. Therefore, the implications would be that the mentioned wiki technology strategies should be the touch points for the instructional processes that the institution may consider to improve the writing skills of the students across the different language courses they are enrolled in. However, from the same findings it was established that not all the wiki technologies strategies yielded positive beta metrics in the sense that they did not have significant predictive effects on improved writing competencies of the students. For that reason it would be deduced that not all specific methods linking to wiki technology would improve writing competencies of the learners. The inconclusive results are corroborating to the literature by Alshalan (2015) considering there were indeterminable findings. In other words, the mentioned studies could not establish any significant relationship between wiki technologies strategies and improved writing competencies of the students.

5.0 Conclusion

The study in the development of the key findings has successfully attained insights for each of the research questions. Foremost, the specific methods that can be tapped to improve writing competencies of students using wiki technology have not only been identified but also validated. The outcome is supported by the statistical analysis presented in the study whereby each of the wiki technology strategies was confirmed to have validity by their own merit. Therefore, as an institution with foreign language department it would be worthwhile for Tashkent University to promote the following specific methods whenever relying on wiki-technology: technology and digitization, interactive dynamic communication, interpersonal information exchange, peer review correction, collaborative learning process, authentic learning experience, wiki-centered peer assessment criteria, interactive learning environment, action oriented learning, collaborative learning, and cooperative learning. Further, each of the mentioned wiki-technology strategies derives more affirmation from the fact that the statistical analysis proved each of them to have real life meaningful effects on writing competencies of the students in the context of accuracy, quality, diction, grammar, and coherence.

In addressing the second research question it was confirmed that specific methods linking to wiki technology have positive impact on writing proficiency of the students. Indeed, the regression model results were affirmative and conclusive on the relationship present in the writing competencies fundamentals i.e. accuracy, quality, coherence, diction, and grammar and key specific methods especially collaborative learning, peer review correction, authentic learning just to mention a few. Therefore, the inclusion of each of the identified methods especially the environment where the learners have direct involvement in correcting one another at the same time working effortless without the teacher intervention reported higher results in terms of reported quality and accuracy in writing exercises. Therefore, wiki technology whenever effectively utilized will provide an enhanced learning atmosphere for the language students and render them to be productive and effective in mastering the best practices in writing skills.

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Topic: Specific Methods of Improving Writing Competence of Students using Wiki Technology
Consent Form

Your participation in this study is totally volitional and you retain full rights to withdraw from it or even skip any question you might feel uncomfortable with.

	Activities	Tick Box
1	I hereby confirm that I have understood the attached ethics consent form regarding the proposed study; I have been given the opportunity to consider all information and seek clarification where all have been addressed satisfactorily	
2	I have understood that my involvement in this study shall remain volitional and that I may withdrawal at any time without offense or detriment to myself. I also understand that data acquired from me shall be included in the main study of which am not able to remove upon it been anonymised. I, nonetheless, agree to participate on this basis	
3	I agree to the use of a survey been sent to my email and later re-coded for further analysis	
4.	I agree to login to any platform to fill up the survey	
5.	I agree that all details from my feedback in the survey to be published in the main dissertation or other academic journals, reports, and books	
6.	I affirm that the researcher may contact me at any time in case of any clarifications needed	
7.	In line with the above clause, I agree that the research may contact me including the university if am needed or required to provide information meant to authenticate this study and all its findings	
8.	I fully agree to participate in this research	

Data Protection

The information recorded through this survey remains private and confidential. There shall be no disclosure of the information whatsoever to third parties.

Name of Participant

Signature

Date

Name of the person taking consent

Signature

Date

PART A: DEMOGRAPHIC INFORMATION

Q1. What is your gender? ☐ Male ☐ Female

Q2. Please state your age _____

Q3. Which language course is you enrolled in the University?

☐ English ☐ German ☐ French

PART B: QUESTIONS ON COLLABORATIVE ENVIRONMENT USING WIKI TECHNOLOGY

Please state how much you would prefer the following to be part of the classroom environment as a language student especially in the improvement of your writing skills.

Variable	Survey	Strongly Not Preferred	Not Preferred	Somewhat Preferred	Preferred	Strongly Preferred
Technology and Digitization	Application of smart phones, social networking, and advancements in the website in writing lessons					
Interactive Dynamic Communication	Communication phenomenon that involves text messages, instant messages, e-mail, scribbling in web space such as Wiki, and tweeting in writing lessons					
Interpersonal Information Exchange	Permeate multiple learners to write, upload photos or images, edit, draw graphics among others					
Peer Review Correction	Pre-defined groups to engage in editing one another's works					
Collaborative Learning Process	Working jointly to achieve common results in a writing training program					
Authentic Learning Experience	Allowance to interact more without the supervision of the teacher in a writing lesson					
Wiki-Centred Peer Assessment	Capacity to interact with one another at					

Criteria	the same time work collaboratively with possibility to comment, discuss on edits, and formulate new ideas in writing modules					
Interactive Learning Environment	Room to interact more thus learn together and complete tasks in writing lessons					
Action Oriented Learning	Capacity to develop knowledge via action and experience and then engage in deliberation and reconciliation of news idea with the past ones in writing classes					
Collaborative Learning	Openness to learn from each other i.e. engagement in collaborative writing					
Cooperative Learning	Capacity for the learning environment to allow peer support and interaction in writing classes					

PART B: QUESTIONS ON IMPROVED WRITING COMPETENCIES

Please rate the following dimensions in respect to your achievement on writing in your language course.

Variable	Survey	Very Low	Low	Somewhat High	Quite High	Very High
Quality	Quality of writing					
Accuracy	Accuracy of writing					
Coherence	Coherence of structure					
Grammar	Grammar errors					
Diction	Correct use of vocabulary					