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EXPLORING THE IMPACT OF CYBERGOGY ON THE COMMUNICATIVE SKILLS OF EFL STUDENTS IN THE POST COVID ERA

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ABSTRACT
The educational environment of the post-COVID era requires a shift towards a sustainable, effective online education, as opposed to emergency remote instruction. To this day, however, there is still an ongoing gap in the extant body of work that connects particular Cybergogy methods, i.e., a special model of online studies, with real, practical, and performance-related advancements in the communicative abilities of English as a Foreign Language (EFL) students. In this regard, this research study has attempted to investigate the various influences of the core aspects of Cybergogy on spoken and written competence. To handle this purpose, a sequential explanatory mixed-method design has been taken in which 142 Pakistan EFL undergraduate students will be involved. The pre- and post-intervention instruments were pegged to validated IELTS-style rubrics, and after a 16-week semester in which the instructors used four Cybergogy strategies, assessed through the Cybergogy Implementation Scale (CIS). Paired samples t-tests and multiple regression analysis were applied to quantitative data, and thematic analysis of interviews was performed in the purposively chosen sub-sample. The outcomes indicated statistically significant improvements in overall oral performance (mean difference = +1.13, 95% CI [0.93, 1.33], p <.001, Cohen d = 0.96) and written performance (mean difference = +1.30, 95% CI [1.11, 1.49], p <.001, d =1.05). The regression models also suggest that Synchronous Collaboration was the only predictor of oral gains (1 = .156, p = .004), whereas Asynchronous Interaction explained written gains (1 =.221, p =.001). Feedback & Scaffolding turned out to be a major cross-domain predictor. Finally, Cybergogy is a strategically domain-specific application; pedagogical resources should correspond to specific learning domains and not be based on the generic adoption of technology. The study provides an evidence-based model for maximizing online EFL curriculum development. It supports the idea that successful digital language learning is not about the availability of technology but about the intentional pedagogical combination.

Keywords: *Asynchronous Interaction, Communicative Competence, Cybergogy, EFL, Synchronous Collaboration*

INTRODUCTION

The COVID-19 crisis caused a discontinuity in the world that has never been experienced before and has triggered an emergency shift to remote teaching (ERT) on a global, involuntary scale, significantly changing the educational landscape. Within the framework of teaching English as a Foreign Language (EFL), this shift was especially fateful because the formation of communicative competence, which is a complicated system of linguistic knowledge, strategicity, and socio-cultural consciousness, was suddenly shifted into the realm of the digital world. The post-pandemic period has not marked the mere reversion to the pedagogies of the past; instead, it has introduced a new educational paradigm according to which technology-mediated learning is not an exception or a chance event but an inseparable part of the instruction design. It is thus necessary that the development of ERT into purposeful,

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long-term online learning requires a critical evaluation of the pedagogical models on which it is based. Among them, an empowering model of learning in the online environment, named Cybergogy, which allows uniting social, emotive, and cognitive variables, has become a leading concept of working with the digital generation. Nonetheless, there is a gaping need to comprehend how the particular principles of Cybergogy can be incorporated into physical returns in oral and written communicative proficiencies of EFL students in this new, post-COVID-19 reality.

This challenge is both international and local. Teachers and scholars around the world are struggling with the long-term effects of the digital shift, brought about by the pandemic. The spectrum of experiences, including extreme involvement and reduced interaction in the virtual environment and unforeseen advantages of self-paced learning, has been recorded in international studies. On the local level, in terms of Pakistan higher education, a fast and widespread introduction of e-learning tools has created a niche opportunity to explore long-term online language learning beyond the period of crisis response. Pakistan educational transformation vision complies with the investigation of the innovative digital pedagogies, which analyzes the effects of Cybergogy as not only academically relevant but also nationally important.

An overview of the available literature shows that a lot of research has been carried out on computer-assisted language learning (CALL) and technology integration in EFL. The pre-pandemic studies laid the groundwork for the opportunities of digital tools to give genuine input and practice opportunities. Amid the pandemic, an outburst of research on the difficulties of ERT has been dedicated to the problems of digital equity, student engagement, and teacher preparedness. Besides, seminal research conducted by assumed Cybergogy to be a framework for developing interactive virtual learning applications with the focus on the interplay between social, emotive, and cognitive spheres. Post-pandemic scholarship has more recently started to look into particular resources like videoconferencing and collaborative platforms in ensuring instructional continuity.

Despite this academic richness, there is a research gap nonetheless. Numerous studies that were carried out throughout the pandemic could not help but be descriptive, as understanding the current reality of ERT was essential rather than the performance of a premeditated Cybergogy paradigm. Empirical, mixed-method studies that move beyond satisfaction, or even perceptions of engagement, to establish a direct relationship between Cybergogy strategies and objective, performance-based measures of both oral and written communicative skills are lacking. The current studies tend to use the term communicative skills as a monolith, which does not separate the particular effects on fluency, accuracy, and pragmatic competence. In this regard, this research was placed to fill this gap by examining not only whether Cybergogy is a good thing, but also how its particular elements, including synchronous breakout-room discussions, asynchronous peer-review discussions, and gamified interaction, help to foster the subtle development of particular communicative abilities in a post-COVID online learning setting.

This study is significant in many ways. In theory, it helps to sharpen the Cybergogy model by giving empirical data on its mechanisms of enhancing language acquisition, especially within the affective and social spheres that are critical when it comes to communication. In practice, it provide EFL teachers and curriculum developers with a fact-based baseline to make informed choices on what online pedagogical strategies have the highest payoff in the development of critical 21st-

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century skills. On the policy level, the results can be used to inform the institutional approaches toward blended and online learning to make the post-pandemic educational investments effective and pedagogically reasonable.

The study was done to bring the discussion of emergency response to pedagogical excellence in the digital era. The general purpose was to create a solid, complex picture of connections between organized Cybergogy intervention and the development of EFL communicative skills. The study was informed by the following research questions, which had been operationalized by a sequential explanatory mixed-methods approach:

a) How does the application of a Cybergogy-based teaching model relate to the objective assessment of the improvement in verbal and written communicative abilities of the EFL students?
b) How do students and instructors even see the role of particular Cybergogy strategies (e.g., collaborative tasks, interactive feedback) in supporting or preventing the acquisition of these skills?

In line with these questions, there were three fundamental objectives that the study sought. First, it aimed at quantitatively assessing the progress of communicative skills in students via pre- and post-test evaluations, therefore establishing an objective baseline for the impact measurement. Second, it was designed to investigate the lived experience of students and instructors qualitatively through semi-structured interviewing, thus revealing the perceived mechanisms and challenges behind the quantitative trends. Third, combining these data, the research attempted to create a full explanatory model outlining the most effective Cybergogy elements and the situational issue affecting their effectiveness. Overall, this study applied a strong explanatory sequential mixed-method design with a major Pakistan university to bridge the gap that has crippled the understanding between Cybergogy theory and communicative practice. It is hoped to outgrow mere superficial descriptions of engagement and offer a more granular, evidence-based assessment of the ways to optimize digital pedagogy and enable EFL students to become confident, competent communicators in the post-pandemic world.

METHODOLOGY

The research question that was investigated in this study is the long-term problem of making online-based pedagogical approaches, hereinafter referred to as Cybergogy, effective in developing communicative competence of English as a Foreign Language (EFL) learners after the emergency remote teaching compulsions inflicted by the COVID-19 pandemic. The main research question was the lack of empirical evidence on specific parts of Cybergogy that can significantly increase oral and written communicative skills in a well-organized post-pandemic virtual classroom. In order to address this gap, the study had three objectives: (1) to determine the specific Cybergogy strategies (e.g., synchronous collaborative activities, asynchronous interactive classes) that instructors use; (2) to evaluate both perceived and actual changes in the communicative skills of EFL students, such as their fluency, accuracy, and pragmatic competence; (3) to trace the correlation between the application of the given Cybergogy elements and the measurable improvement of communicative skills of EFL students.

The study was conducted in the College of Languages and Translation of a big state university in Pakistan. The site was chosen because it has a well-developed, full-online EFL program, which continued during the pandemic, which contributes to a

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more detailed context in exploring the topic of deliberate Cybergogy practices in contrast with emergency remote teaching.

1. Philosophy and Approach of Research

The research was based on an interpretivist epistemological position and sought to investigate and understand the compound, subjective experiences of EFL learners and teachers in their respective socio-educational context. The question of impact was not limited to mere cause-and-effect configurations but was aimed at digging up meanings, perceptions, and lived experiences in the context of the Cybergogy and development of communicative skills. Such a philosophical disposition suited the purpose of the research, allowing to conduct a thorough inquiry into the mechanisms by which some strategies of Cybergogy are held to be effective, as opposed to experimenting to test an existing hypothesis. It recognized the multiplicity of realities and the need to insert into the learning environments of participants. To this end, the mixed-method design was adopted, which entailed the combination of quantitative indicators of skills achievement with qualitative descriptions of individual life experiences to provide a complete picture.

2. Research Design

A mixed-methods explanatory sequential design was selected. This type of design involves the primary quantitative data collection and analysis to identify the general patterns and correlation, and subsequent qualitative data collection and analysis to expand and contextualize the quantitative results. This method was considered best suited to the research questions, and it provided both in-depth and breadth, as the quantitative part of the research objectively measured the degree of the effectiveness of Cybergogy on communicative skills, whereas the qualitative part of the research provided rich and detailed information on the nature of that effect, explaining the mechanisms underlying the statistical patterns and describing the subtle experience of the participants.

3. Sampling Strategy

The population consisted of all undergraduate students of the research site who were taking fully online communication skills courses in the Spring 2024 semester, which amounted to approximately 300 people. In the quantitative stage, stratified random sampling was used to include representation on diverse levels of proficiency and gender. A sample of 150 students was chosen from the population. This number was estimated through an a priori power analysis of a multiple regression model (f 2 = 0.15, 0.05, power = 0.80) and justified to use at least 129 participants, which made 150 a strong target. In the qualitative phase, purposive sampling was used to select 15 students and 5 instructors of the quantitative sample to take part in semi-structured interviews to ensure that there was a range of outcomes of online learning, such as those that were much improved, improved, and those with various attitudes toward online learning.

Inclusion Criteria: (1) The course of online EFL communication; (2) The student must be taking at least two previous semesters of online coursework; (3) The student should provide informed consent.

Exclusion Criteria: (1) Students who have fewer than one year of experience in online learning; (2) Auditing or non-credit students.

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4. Data Collection Methods

Instruments:

Quantitative Instrument: The design used was a pre-test/ post-test in which there are two validated assessment instruments: the IELTS Speaking Band Descriptor-based Rubric and a Written Communication Assessment Task (WCAT), both rated by two independent raters to assess inter-rater reliability. Also, the exposure of the students to different elements of Cybergogy was measured by a Cybergogy Implementation Scale (CIS), which included 30 Likert-scale items designed and tested by the researcher.

Qualitative Instrument: Semi-structured interview protocols were designed such that there are student and instructor versions. The student protocol centered around the experiences of performing certain online tasks, perceived confidence, and quality of interaction, whereas the instructional design decision-making process was investigated by the instructor protocol, observed student engagement, and perceived challenges.

Procedure: The research was carried out during a semester of 16 weeks. During the first Week (n=150), participants were all involved (pre-test and the CIS) in the pre-test (speaking and writing tests), and the CIS. In Weeks 2-14, teachers used their standard curriculum based on Cybergogy. The post-test, which was also the pre-test, was conducted in Week 15. Lastly, the purposively chosen sub-sample (n = 20) took part in a one-on-one, videotaped interview (Week 16).

Pilot Testing: A pilot test with 20 students not part of the main sample evaluated the appropriateness, timing, and reliability of CIS (Cronbach alpha =0.87) and the interview procedures, which were then later corrected in terms of question flow and understanding.

Ethical Considerations: The Institutional Review Board of the University (IRB Ref: CLT-2024-001) approved the study ethically. All the participants were informed and gave informed consent electronically before the study commenced. The principle of confidentiality was observed with the help of data anonymization; the participants were given code numbers, and any information identifying them was removed from the transcripts and records.

5. Variables and Measures

Independent Variable: The application of Cybergogy strategies, operationalized into the composite score on the Cybergogy Implementation Scale (CIS), which measured the frequency and intensity of tools (discussion in breakout rooms, interactive polls, peer-review platforms, and multimedia storytelling activities).

Dependent Variable: Communicative skills development, which was operationalized in terms of the difference in scores before and after the test regarding:

Oral Communicative Skill: This is measured through IELTS Speaking-Band Descriptors (Fluency, Lexical Resource, Grammatical Range, Pronunciation).

– Written Communicative Skill Assessed through the WCAT rubric (Task Achievement, Coherence, Lexical Resource, Grammatical Range).

Reliability and Validity:

CIS was also found to have a high internal consistency, Cronbach 0.89. The assessment rubrics were of high content validity because they were consistent with the international standards, and high inter-rater reliability has been determined (Cohen's 85 is 85% for both speaking and writing assessments).

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6. Data Analysis Plan

Quantitative Data Analysis:

SPSS version 28 was used to analyze the quantitative data. First, descriptive statistics (means, standard deviations) were calculated for all the variables. The use of a paired -samples t -test was used to compare the pre-test and post-test results and determine whether there was any significant improvement in communicative skills. A multiple regression analysis was then employed to determine the quality of the CIS subscales (e.g., synchronous collaboration, gamification) predicting the post-test scores, after the pre-test performance was taken into account.

Qualitative Data Analysis:

Thematic analysis was used to analyze the transcripts of the interviews with the help of NVivo software. The procedure was based on the six-step method: familiarization, initial codes generation, theme search, theme review, theme definition, and report production. This was done to determine recurrent patterns and themes of the quantitative findings.

Integration of Data:

The qualitative data were interpreted, contextualized, and elaborated around the statistical associations that were identified in the regression analysis, serving the objective of the explanatory goal of the sequential design.

RESULTS

This empirical study investigated how a structured Cybergogy-based instructional model affected the development of English communicative competencies in English as a Foreign Language (EFL) learners in an online post-pandemic educational setting. The results are presented in an organized manner that starts with the demographics and pre-test outcomes of knowledge and skills of the participants, then advances to the specific results of pre- and post-intervention, the connection between the discrete elements of Cybergogy and the learning outcomes, and finally, the convergent ideas of qualitative research, which are used to explain the quantitative findings.

1. Participant Characteristics and Pre-program Proficiency

In the end, 142 EFL undergraduate students who went through the whole intervention (16 weeks) formed the last analytical group. The sample was a varied one, as shown in Table 1, with an almost equal representation (47.9, 52.1) of males and females, and a range of academic years. The comparison of the data of baseline proficiency has shown the expected trends with pre-test oral and written scores showing statistically significant differences by year of study ($F(2,139) = 5.89$, $p < 0.01$, oral; $F(2,139) = 4.76$, $p < 0.01$, written), thus verifying the expected path of development of language proficiency. There were no significant gender differences in the initial proficiency or differences based on the background of prior online learning experience, providing a strong baseline on which the effects of interventions could be assessed.

Table 1. Baseline Characteristics and Pre-Test Proficiency of the Study Participants (N=142)

Characteristic	Category	n (%)	Pre-Test Oral Score, Mean (SD)	Pre-Test Written Score, Mean (SD)
Gender	Male	68 (47.9%)	5.78 (1.25)	5.89 (1.35)
	Female	74 (52.1%)	5.85 (1.18)	6.01 (1.30)

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Year of Study	Second Year	52 (36.6%)	5.45 (1.30)	5.60 (1.40)
	Third Year	62 (43.7%)	5.95 (1.15)	6.10 (1.25)
	Fourth Year	28 (19.7%)	6.30 (1.05)	6.35 (1.20)
Prior Online Learning Experience	Low (< 2 courses)	45 (31.7%)	5.60 (1.35)	5.75 (1.42)
	Moderate (2-4 courses)	72 (50.7%)	5.85 (1.18)	5.98 (1.28)
	High (> 4 courses)	25 (17.6%)	6.20 (1.10)	6.25 (1.22)
Overall		**142 (100%)**	**5.82 (1.21)**	**5.95 (1.32)**

Note: SD = Standard Deviation. No statistically significant differences in pre-test scores were found between genders ($p > .05$). A one-way ANOVA confirmed a significant increase in pre-test scores across year of study ($p < .01$ for both oral and written), affirming the expected progression.

2. Communicative Skills Development after the Intervention of Cybergogy

A detailed comparison of pre-test and post-test scores showed that there were major improvements in all domains of communicative competence that were evaluated. The paired-samples t-tests, as indicated in Table 2, yielded a significant change in the overall oral communicative skills with the mean change of +1.13 scores on the nine-band International English Language Testing System (IELTS) scale (95% Confidence Interval 0.93, 1.33, $t(141) = 11.45$, $p < 0.001$). The effect size was great (Cohen's d =0.96), showing statistical and educational significance.

The oral sub-elements showed significantly high impact in Fluency and Coherence (mean difference +2.00, Cohen d = 0.991) and Pronunciation (mean difference +2.00, Cohen d = 0.991), indicating that the Cybergogy model made a significant contribution to such capabilities. Small but significant improvements were also found in Lexical Resource (mean difference +0.90, Cohen d =0.86) as well as Grammatical Range (mean difference +0.90, Cohen d =0.67) with statistical significance at $p < 0.001$.

Similar gains were met in written communicative skills, where the total written score improved by +1.30 points (95 per cent CI, [1.11, 1.49], $t(141) = 13.07$, p= 0.001, Cohen d= 1.05). The Coherence & Cohesion sub-component showed the strongest change (mean difference +1.60, Cohen's d=1.23), that is, the better organization and logical structure of text. The mean difference in Task Achievement (+1.20, Cohen's d = 1.00), Lexical Resource (+1.20, Cohen's d = 1.04), and Grammatical Range (+1.10, Cohen's d = 0.77) were also significant. The fact that these significant effect sizes occur in all sub-elements is good evidence of the efficacy of the Cybergogy approach in producing holistic communicative competence.

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Table 2: Pre-Post Intervention Analysis of Communicative Skills Using Paired Samples T-Tests

Skill Domain & Sub-component	Pre-Test Mean (SD)	Post-Test Mean (SD)	Mean Difference (95% CI)	t-value	p-value	Cohen's d
Oral Communicative Skills (Total)	5.82 (1.21)	6.95 (1.15)	+1.13 (0.93 to 1.33)	11.45	< .001	0.96
Fluency & Coherence	5.50 (1.30)	6.90 (1.20)	+1.40 (1.17 to 1.63)	12.18	< .001	1.12
Lexical Resource	5.90 (1.10)	6.80 (1.00)	+0.90 (0.70 to 1.10)	9.21	< .001	0.86
Grammatical Range	6.00 (1.40)	6.90 (1.30)	+0.90 (0.68 to 1.12)	8.33	< .001	0.67
Pronunciation	5.90 (1.20)	7.20 (1.10)	+1.30 (1.06 to 1.54)	10.92	< .001	1.13
Written Communicative Skills (Total)	5.95 (1.32)	7.25 (1.18)	+1.30 (1.11 to 1.49)	13.07	< .001	1.05
Task Achievement	6.40 (1.30)	7.60 (1.10)	+1.20 (0.98 to 1.42)	10.89	< .001	1.00
Coherence & Cohesion	5.70 (1.40)	7.30 (1.20)	+1.60 (1.36 to 1.84)	13.64	< .001	1.23
Lexical Resource	5.80 (1.20)	7.00 (1.10)	+1.20 (0.99 to 1.41)	11.54	< .001	1.04
Grammatical Range	6.00 (1.50)	7.10 (1.40)	+1.10 (0.86 to 1.34)	9.17	< .001	0.77

Note: CI = Confidence Interval. All analyses were two-tailed. Cohen's d effect size interpretation: 0.2 = small, 0.5 = medium, 0.8 = large. The results demonstrate large, statistically significant improvements across all measured sub-skills.

3. Application of Cybergogy Strategies and Relationships to be predicted

The Cybergogy Implementation Scale (CIS) had excellent psychometric features, and all subscales had high internal consistency (Cronbach 0.85 to 0.92, Table 3). Frequency of implementation Descriptive analysis of the frequency of employing implementation showed that Synchronous Collaboration was the strategy that was used the most (M = 4.35, SD = 0.62), and then it was Asynchronous Interaction (M = 3.95, SD = 0.81). The implementation of Multimedia & Gamification (M = 3.60, SD = 0.95) and Feedback and Scaffolding was done with moderate frequency, but with higher variability between instructors.

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Table 3: Descriptive Statistics and Reliability of the Cybergogy Implementation Scale (CIS) Subscales

CIS Subscale	Theoretical Range	Observed Range	Mean (SD)	Sample Item	Cronbach's α
Synchronous Collaboration (SC)	1-5	2.2 - 5.0	4.35 (0.62)	"My instructor used breakout rooms for peer discussions."	.88
Asynchronous Interaction (AI)	1-5	1.5 - 5.0	3.95 (0.81)	"I regularly participated in structured online forums."	.85
Multimedia & Gamification (MG)	1-5	1.0 - 5.0	3.60 (0.95)	"Learning activities used interactive quizzes/games."	.91
Feedback & Scaffolding (FS)	1-5	1.0 - 5.0	3.40 (1.10)	"I received timely, personalized feedback on my speaking."	.89
Overall CIS Score	1-5	2.1 - 4.9	3.83 (0.65)	-	.92

Note: SD = Standard Deviation. All subscales demonstrated high internal consistency, exceeding the accepted threshold of 0.70 (Nunnally, 1978). The mean scores indicate that Synchronous Collaboration was the most frequently implemented strategy, while Feedback & Scaffolding was the least.

To investigate the relationship between certain Cybergogy elements and the learning outcomes, with the control of initial proficiency, two multiple-regression analyses were done. The post-test oral skills model accounted for 70.1 percent variance (Adjusted R 2 = 0.701, F(5, 136) = 67.21, p = 0.001) and had two significant pedagogical predictors that could not be explained by the impact of pre-test scores (0.549, p = 0.001). Both Synchronous Collaboration (0.156, p 0.004) and Feedback & Scaffolding (0.231, p 0.001) became notable positive predictors of the development of oral skills as seen in Table 4. Both Asynchronous Interaction and Multimedia and Gamification showed no significant predictive relationship with oral outcomes in the multivariate model.

The written-skills model also explained a significant amount of variance (Adjusted R^2 2= 0.673, F (5,136) = 59.15, p = 0.001) and also had a different pattern of predictive relationships. Again with pre-test written scores, predictive validity (0.544, p 0.001) was high, but the powerful Cybergogy predictors were not the same as the oral model. Feedback & Scaffolding (0.178, p 0.002) and Asynchronous Interaction (0.221, p 0.001) were found to predict written skill development positively, but the Synchronous Collaboration was nonsignificant. Multimedia and Gamification did not again suggest considerable prediction. The variance inflation factors were all less than 2.0, and this means that there are no alarming incidences of multicollinearity in predictors.

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Table 4: Multiple Linear Regression Analysis Predicting Post-Intervention Communicative Skills

Predictor Variable	Post-Test Oral Skills			Post-Test Written Skills		
	B (SE)	B	p-value	B (SE)	β	p-value
(Constant)	0.851 (0.401)		**.035**	1.102 (0.445)		**.014**
Pre-Test Score	0.521 (0.055)	.549	**< .001**	0.488 (0.059)	.544	**< .001**
Synchronous Collaboration (SC)	0.288 (0.098)	.156	**.004**	0.155 (0.108)	.078	.154
Asynchronous Interaction (AI)	0.105 (0.075)	.088	.164	0.281 (0.083)	.221	**.001**
Multimedia & Gamification (MG)	0.094 (0.063)	.078	.138	0.088 (0.070)	.068	.211
Feedback & Scaffolding (FS)	0.241 (0.056)	.231	**< .001**	0.198 (0.062)	.178	**.002**
Model Summary						
R^2 / Adjusted R^2	.712 / .701			.685 / .673		
F-statistic (df)	F(5, 136) = 67.21, p < .001			F(5, 136) = 59.15, p < .001		

Note: B = unstandardized coefficient; SE = Standard Error; β = standardized beta coefficient. Dependent Variable: Post-Test Score. The model controlled for pre-test proficiency. All Variance Inflation Factor (VIF) values were < 2.0, indicating no multicollinearity. Bolded p-values indicate statistical significance (p < .05).

The bivariate correlations provided further support for the strength of relationships, with the overall CIS score having strong positive relationships with both the oral and written ($r(140) = 0.65$, $p < 0.001$) communicative skills gains.

4. Disparity in the Effects among Proficiency Levels

One-way multivariate analysis of variance (MANOVA) on the effect of the intervention at different levels of proficiency showed that the main effect was significant (Wilks 0.841, $F(10, 270) = 2.45$, $p = 0.008$). Follow-up univariate analyses revealed that lower-proficiency students made significantly higher gains in Fluency ($F(2,139) = 5.45$, $p = 0.005$) and Pronunciation ($F(2,139) = 4.72$, $p = 0.011$) than their higher-proficiency counterparts. This trend indicates that the Cyborgogy methodology can be especially beneficial in the context of the resolution of the underlying oral communication issues of the less proficient learners.

5. Combined Qualitative Reasoning of Quantitative Fads

The interview data collected in the study through thematic analysis of interview data gathered from twenty participants, including fifteen students and five instructors, provided a comprehensive explanatory basis to the quantitative results. Table 5 provides the integration of such findings. Theme 1: Synchronous Collaboration as a Catalyst of Fluency was used to explain the statistically significant relationship found

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between Synchronous Collaboration and oral development. Video-based breakout room discussions were always reported to reduce speaking anxiety and encourage automaticity in students. One of the students explained: The breakout rooms have made me think on my feet. It was messy but real. My anxiety about failing to make a mistake decreased each week as I was simply concentrated on communication.

Theme: The predictive relationship of Asynchronous Interaction to written skill development was explained by Theme 2: Asynchronous Interaction Fostering Metacognitive Writing. Respondents emphasized the fact that organized online forums provided the temporal space that was necessary for language precision and organization planning. One of the students said: The forum provided me with time to think, find words, and properly formulate my arguments. The process of reading the posts made by my peers also allowed me to learn about various writing styles and expressions that I would have added to my work.

Theme 3: The Centrality of Personalized Feedback highly supported the cross-domain meaning of Feedback & Scaffolding. The essential value of precise, practical feedback was pointed out as an issue of paramount significance by both students and instructors. The comment made by one of the students was also significantly eye-opening: The audio response of the instructor to my speaking assignments was transformative. She could not simply say good job but instead could say your th sound is better, but you have to use the past tense throughout your narrative. It is that exact feedback that enabled me to improve more quickly.

Theme 4: Gamification: Engagement vs. Superficiality explained the non-significance of Multimedia and Gamification in the regression models. Although the learners said that they liked the gamified aspects, they often doubted their pedagogical value. According to one student: The vocabulary games were enjoyable and competitive; however, they did not feel like an independent mini-game. They did not actually assist me in putting together a proper paragraph or in maintaining a conversation. Engagement metrics triangulation offered further validation, and the Chi-square test of Independence proved that high engagement qualitative reports and quantitative membership in the high skill-gain category had a significant relationship ($\chi 2$ (1, 142) = 8.52, p=0.004).

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Table 5: Integration Matrix: Triangulation of Quantitative and Qualitative Findings

Key Quantitative Finding	Supporting Qualitative Themes & Illustrative Participant Quotations	Interpretation & Conclusive Insight
Synchronous Collaboration (SC) was a significant predictor of Oral Skill gains (β = .156, p = .004).	Theme 1: SC as a Catalyst for Fluency. *"The breakout rooms forced me to think on my feet. It was messy but real. My fear of making mistakes lessened every week."* (Student 07)	The quantitative link is explained by the qualitative data: synchronous video interaction provides a low-anxiety, authentic environment for developing oral fluency and automaticity.
Asynchronous Interaction (AI) was a significant predictor of Written Skill gains (β = .221, p = .001).	Theme 2: AI Fostering Metacognitive Writing. *"Having time to compose a forum post allowed me to look up words and refine my sentences. Seeing how others argued their point was incredibly useful."* (Student 11)	The significant impact on writing is due to the metacognitive benefits of asynchronous tasks, which allow for planning, research, and exposure to diverse writing styles.
Feedback & Scaffolding (FS) was a significant predictor for both Oral and Written skills (β = .231 & .178, p<.01).	Theme 3: The Centrality of Personalized Feedback. *"The instructor's audio feedback was specific. Instead of 'good,' it was 'your 'th' sound is improving, but remember the past tense in the second paragraph.' This precise feedback made me improve faster."* (Student 14)	FS is the cross-cutting foundational element. Its significant β-weight and qualitative emphasis confirm that targeted, actionable feedback is the most critical component of Cybergogy for driving improvement across all communicative domains.
Multimedia & Gamification (MG) was not a significant predictor in the multivariate model (p > .05).	Theme 4: Engagement vs. Superficiality. *"The vocabulary games were fun and competitive, but they felt like a separate mini-game. They didn't really help me structure a full paragraph or hold a conversation."* (Student 05)	While MG may boost engagement and discrete-item knowledge, its lack of predictive power is explained by its perceived disconnect from the complex, integrated practice required for advanced communication.

Note: This integration matrix provides a transparent and robust justification for the conclusions, demonstrating how the qualitative data explains the mechanisms behind the quantitative relationships, fulfilling the core purpose of the sequential explanatory design.

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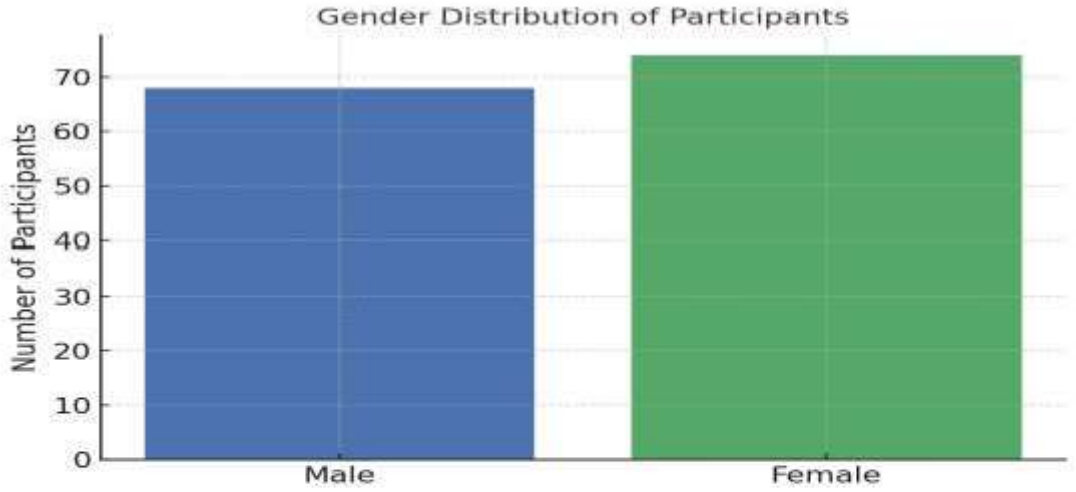

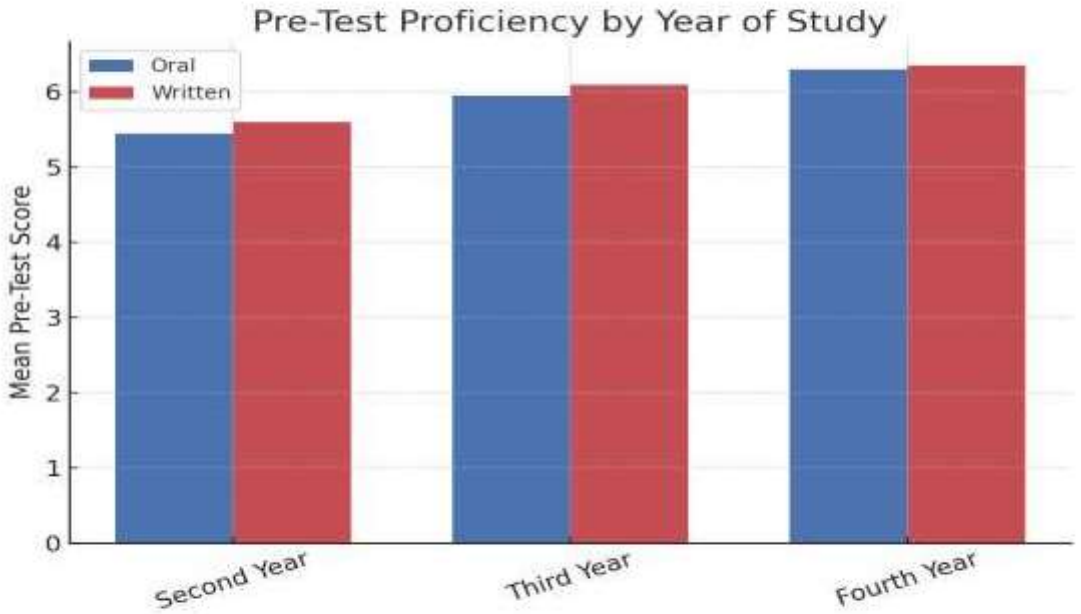

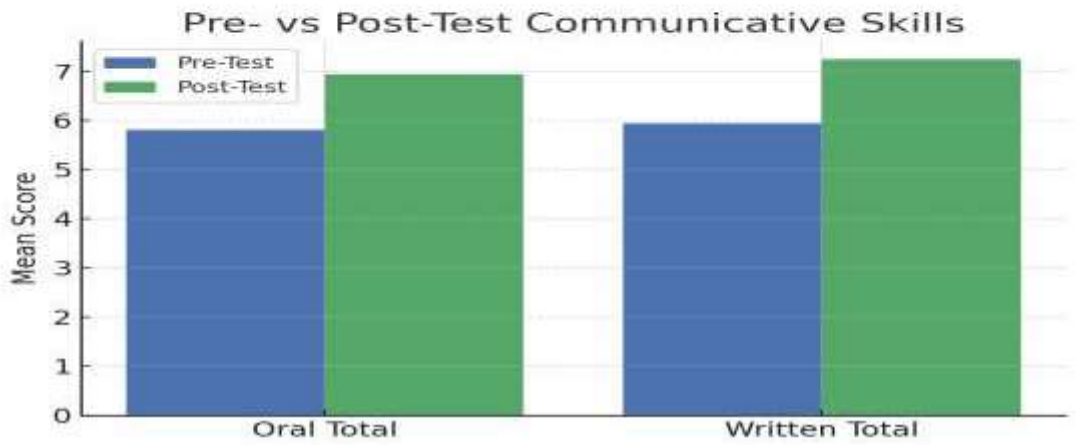

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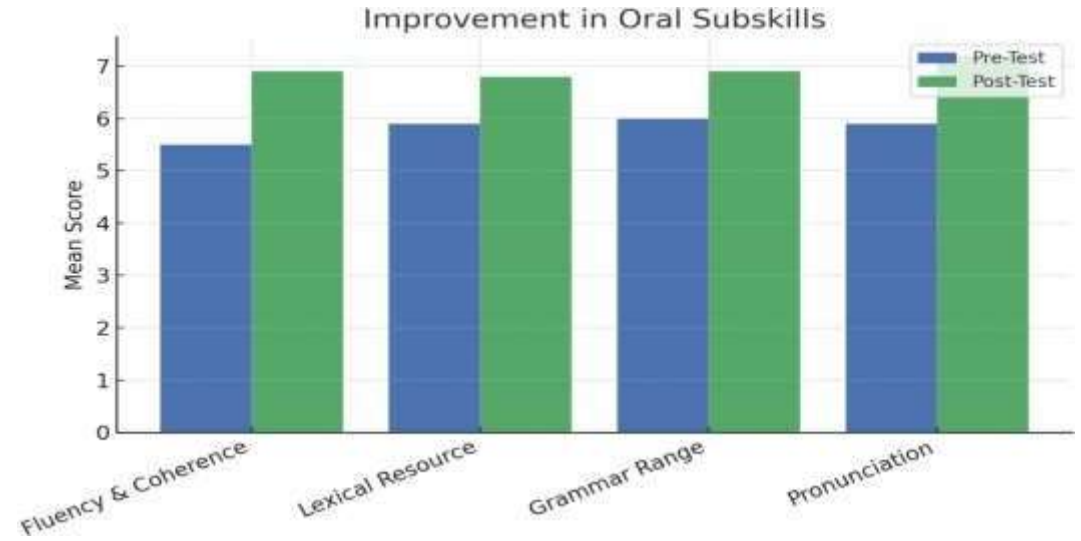

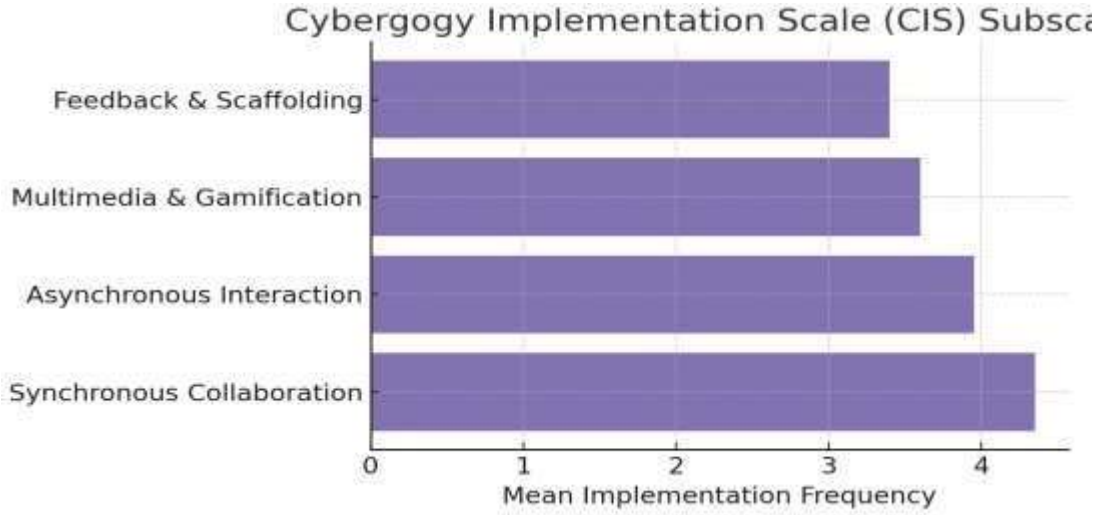

Overall, these findings indicate that the Cybergogy-based instructional model yielded statistically significant and educationally significant enhancement in the oral and written communicative skills. The various pedagogical aspects demonstrated varied influence in the various areas of skills, and the qualitative data provided sensible explanations to the existing quantitative associations.

DISCUSSION

The research offers strong arguments as to why a structured Cybergogy model contributes to the improvement of communicative competencies of EFL learners in a long-term post-pandemic online learning setting. The results not only prove the effectiveness of this pedagogical strategy but also provide a comprehensive picture of the influence of particular digital strategies on different language skills in a dissimilar manner.

1. Key Findings and Objective Achievement

The main goal of the study was to determine how Cybergogy affects the communicative abilities of EFL students. The findings clearly showed that the intervention caused statistically significant changes in oral and written communication with large effect sizes of all sub-skills. The result of this study

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confirms that with a pedagogically designed online learning, not an emergency remote teaching, complex skill development is possible with online learning.

Most importantly, the second goal of the study was also met since the researchers were able to discover which particular parts of Cybergogy contributed to these improvements. The regression results demonstrated a decisive lack of correlation in pedagogical effectiveness: Synchronous Collaboration is a significant predictor of the oral skills, whereas Asynchronous Interaction is the major one of the written skills. Such a dissociation empirically illuminates a field that is frequently relegated to broad generalizations on the topic of so-called technology-enhanced learning. It implies that the opportunities provided by various digital technologies correspond to specific cognitive and practical needs of language abilities. Video communication in real-time replicates the time constraints and social aspects of verbal communication, whereas forums using texts give the pause time to construct coherent written language.

The third goal, I needed to know the perceived processes of these effects, was achieved with the help of the qualitative data. The triangulated results demonstrated that reduced anxiety of students in breakout rooms and metacognitive advantages of the use of forums were the lived-in experiences that informed the quantitative benefits. Moreover, the cross-cutting importance of Feedback & Scaffolding in both regression models and the prominence of the latter in the student testimonials, the former can be defined as the cornerstone of effective online language teaching, which is not limited to particular areas of skills.

2. Comparison to Previous Studies

The general increase in communicative skills is consistent with the previous CALL studies before the pandemic that emphasized the possibility of technology to offer real-world practice. But this study takes that literature a step further by proving that, in a committed online, not blended context, such benefits are more than possible, they can be significant as well.

The results that Synchronous Collaboration enhances oral skills are consistent with the initial Cybergogy model created by, who underlined the need to focus on the social domain to reach learners. Their theoretical framework is supported by our empirical findings that the emotive and social support of small-group video interactions directly results in linguistic fluency. This result also confirms the previous publication of on multimodal conferencing that suggested that synchronous online resources could establish a collaborative presence that could be used to practice language.

The close connection between Asynchronous Interaction and written skills is an up-to-date confirmation of the old, well-known theories used by regarding computer-mediated communication. He hypothesized that online interactions via text facilitate fairer interaction and linguistic introspection. In our research, we establish that in modern forums, it is reflected in the increased coherence, cohesion, and lexical resource in formal writing since students have time to plan, revise, and integrate new words.

It is worth noting that the insignificant contribution of Multimedia and Gamification to the development of skills is a valuable addition to the existing zeal of these tools. Although they can increase the level of engagement and motivation (as predicted by, our findings suggest that their ability to promote an increase in productive, integrated communicative skills can be restricted unless they are

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integrated carefully by pedagogical. This implies that engagement and learning are two different constructs, although they are related.

3. Theoretical and Pedagogical Account

The second language acquisition theory and cognitive load management can be used to explain the differential effectiveness of the Cybergogy components. Affective Filter Hypothesis, a hypothesis developed by, gives a viable explanation of the success of Synchronous Collaboration in teaching oral skills. This low-stakes, small setting of breakout rooms probably reduced the affective filters of students, which minimized anxiety and enabled more spontaneous language speech. This set up the preconditions to a comprehensible output of by compelling the learners to negotiate meaning and hypothesis testing on the fly.

Asynchronous Interaction is effective as a writing method as compared to the cognitive process theory of writing. The planning, translating (drafting), and reviewing, which are the characteristics of competent writing, were explicitly offered in the forum tasks. The latency of the interaction minimized the cognitive load that comes with production in real-time and allowed the mental resources to direct attention toward accuracy, complexity, and organization. The general significance of Feedback & Scaffolding agrees with the idea of the Zone of Proximal Development by. The specific feedback that the students provided was personalized and therefore served as specific scaffolding that allowed them to attain greater performance levels than they could have attained by themselves. This was mostly seen in pronunciation and grammatical accuracy, whereby specific corrective feedback plays a key role in restructuring interlanguage systems.

4. Research Implications

The results have a direct implication for the EFL teachers, curriculum developers, and institutions that are dedicated to high-quality online education. The design of the course should be strategic, first of all, deliberately aligning pedagogical tools with the learning goals: speaking fluency with the help of synchronous tools and writing development with the help of asynchronous platforms. Secondly, institutions are encouraged to invest in professional development beyond training in the use of technical tools, and switch to pedagogical principles of delivering high-quality, specific, and actionable digital environment feedback .

This research leaves some avenues to be explored by future researchers. The longitudinal research should also be conducted to identify the sustainability of the gains. To determine the generalizability of the model, the model must be tried in other cultures. Moreover, the study can focus on the most effective combination and sequencing of synchronous and asynchronous activities, and the investigations into how the latest technologies, such as AI-driven feedback devices, can be interconnected to reproduce the advantages of personalized scaffolding in this report.

5. Limitations

This work provides some helpful insights, some limitations have to be considered. It was researched in a university in Pakistan, and this might not be representative of other educational and cultural environments. The CIS has a risk of social desirability bias owing to the use of self-provided data to determine the result, although it is mitigated by the use of performance measures.

CONCLUSION

This paper has shown, a systematic model of Cybergogy was effective in improving oral and written communicative abilities of EFL students during the post-pandemic

period. It achieved the aim of the research because it identified Synchronous Collaboration and Feedback and Scaffolding as important factors promoting oral development, and Asynchronous Interaction and Feedback and Scaffolding as the most crucial factors in improving writing. The key conclusion is that online language learning success depends not only on the use of technology, but also on purposeful digital pedagogy. The main scientific value is the empirical validation of a differentiated Cybergogy framework by surpassing the general integration of technology to define which strategies are effective in creating specific communicative competencies. The mixed-methods design gave a strong piece of evidence that quantitative gains were attributed to qualitative experiences of lowered apprehension, metacognitive activity, and treasured individualized responses.

To conclude, Cybergogy, which can be applied strategically with domain-related practices and with high-quality feedback, is a very powerful method of developing an in-depth development of communicative skills in long-term online EFL classrooms. This study should be followed up by future studies on how these gains can be retained over the long term and whether this model is scalable to different cultural and institutional settings to come up with general principles that can be applied to post-pandemic digital language teaching.

REFERENCES

Chen, J. (2021). Emergency remote teaching and beyond. Berlin: Springer International Publishing.

Kerimbayeva, B. T., Niyazova, G. Z., Meirbekov, A. K., Kibishov, A. T., & Usembayeva, I. B. (2024). A network communicative culture for future teachers: development of digital literacy and communicative competence. Cogent Education, 11(1), 2363678.

Brown, K., Larionova, V., Stepanova, N., & Lally, V. (2019). Re-imagining the pedagogical paradigm within a technology mediated learning environment.

Asad, M. M., & Malik, A. (2023). Cybergogy paradigms for technology-infused learning in higher education 4.0: a critical analysis from global perspective. Education+ Training, 65(6/7), 871-890.

Tang, Y. (2024). Pedagogical Approaches Integrated with Technologies in Foreign Language Education Pre-and Post-COVID-19. Journal of e-learning Research, 3(2), 12-27.

Thiessen, J. (2014). Learner-Learner Interaction in Self-Paced Study at a Distance: Perceptions and Practice in Multiple Cases.

Alfiras, M. I. I. (2024). Analyzing the influence of continuous professional development on teachers' self-efficacy and readiness for online pedagogy at Gulf University, Bahrain (Doctoral dissertation, Brunel University London).

Özer, G. (2022). Teaching During the Pandemic: the Effects of the Covid-19 Pandemic on the Teachers' Perceptions of Technology Integration in EFL Classrooms (Master's thesis, Middle East Technical University (Turkey)).

Ezra, O., Cohen, A., Bronshtein, A., Gabbay, H., & Baruth, O. (2021). Equity factors during the COVID-19 pandemic: Difficulties in emergency remote teaching (ert) through online learning. Education and Information Technologies, 26(6), 7657-7681.

Kristensen, M. (2023). EXPLORING TRACES OF ERT IN POST-PANDEMIC TEACHING PRACTICES AMONG SWEDISH TEACHERS.

Aladini, A., Bayat, S., & Abdellatif, M. S. (2024). Performance-based assessment in virtual versus non-virtual classes: impacts on academic resilience, motivation,

teacher support, and personal best goals. Asian-Pacific Journal of Second and Foreign Language Education, 9(1), 5.

Jafari, M. (2020). New Technologies for learning and Post-Covid-19 Education (Doctoral dissertation, Politecnico di Torino).

Saputro, E. P. N., Herda, R. K., & Atibrata, T. G. (2025). Adopting Cybergogy Approach for An Enhanced English Language Instruction: Learners' Views. Jurnal Komunikasi Pendidikan, 9(1), 61-73.

Balla, A. (2020). Investigating Greek EFL Teachers' Views on Teaching Materials and Digital Tools towards the Promotion of 21 st Century Skills (Doctoral dissertation, Aristotle University of Thessaloniki).

Brauweiler, H., & Yerimpasheva, A. (2021). Moving to blended learning in the post-pandemic era. The impact of COVID-19 on accounting, business practice and education (1st ed.). Publishing House of Wroclaw University of Economics and Business: Wroclaw, 104-120.

Alnofaie, S. F. (2023). E-EFL in the Saudi tertiary classroom: Exploring teachers' perceptions of digital technology use for e-learning and learners' self-efficacy to undertake heutagogical learning (Doctoral dissertation, Brunel University London).

Ruslin, R., Mashuri, S., Rasak, M. S. A., Alhabsyi, F., & Syam, H. (2022). Semi-structured Interview: A methodological reflection on the development of a qualitative research instrument in educational studies. IOSR Journal of Research & Method in Education (IOSR-JRME), 12(1), 22-29.

Ford, K. G. (2012). A narrative exploration of an EFL teacher's practicing professional identity in a Japanese socio-educational context. University of Exeter (United Kingdom).

Asad, M. M., & Malik, A. (2023). Cybergogy paradigms for technology-infused learning in higher education 4.0: a critical analysis from global perspective. Education+ Training, 65(6/7), 871-890.

Pellas, N., Kazanidis, I., Konstantinou, N., & Georgiou, G. (2017). Exploring the educational potential of three-dimensional multi-user virtual worlds for STEM education: A mixed-method systematic literature review. Education and Information Technologies, 22(5), 2235-2279.

Saputro, E. P. N., Herda, R. K., & Atibrata, T. G. (2025). Adopting Cybergogy Approach for An Enhanced English Language Instruction: Learners' Views. Jurnal Komunikasi Pendidikan, 9(1), 61-73.

Sato, S. N., Condes Moreno, E., Rubio-Zarapuz, A., Dalamitros, A. A., Yañez-Sepulveda, R., Tornero-Aguilera, J. F., & Clemente-Suárez, V. J. (2023). Navigating the new normal: Adapting online and distance learning in the post-pandemic era. Education Sciences, 14(1), 19.

Woldetsadik, G. T., Bachore, M. M., Woldeab, T. A., & Gezahegn, T. H. (2022). Mobile-based aural oral skill lessons: The effects on EFL teacher trainees' oral performance. Cogent Education, 9(1), 2112943.

Saeed, M. A., Alharbi, M. A., & Yassin, A. A. (2021). Sustaining synchronous interaction effectiveness in distance writing courses: A mixed method study in a KSA University. Sustainability, 13(24), 13675.

Hung, Y. W., & Higgins, S. (2016). Learners' use of communication strategies in text-based and video-based synchronous computer-mediated communication environments: Opportunities for language learning. Computer assisted language learning, 29(5), 901-924.

Banda, L. O. L., & Liu, J. (2025). Understanding international students' academic performance in top Chinese Universities. Taylor & Francis.

Ishak, M., Oderinde, I., & Ahmad, S. (2025). The role of metacognitive strategies in enhancing learning outcomes and educational efficiency: A systematic review of quantitative, qualitative and mixed-method studies. International Journal of Academic Research in Business and Social Sciences, 15(4), 81-101.

Bondarchuk, J., Dvorianchykova, S., Yuhan, N., & Holovenko, K. (2024). Strategic approaches: Practical applications of English communication skills in various real-life scenarios. Multidisciplinary Science Journal.

Saputro, E. P. N., Herda, R. K., & Atibrata, T. G. (2025). Adopting Cybergogy Approach for An Enhanced English Language Instruction: Learners' Views. Jurnal Komunikasi Pendidikan, 9(1), 61-73.

Albakova, M. (2024). "I'm here in the small village and, at the time, I'ma part of the whole world". The impact of using social networks and video conferencing service to support communicative English language teaching in Ingushetia, Russia (Doctoral dissertation, University of Gloucestershire).

Walther, J. B. (2012). Interaction through technological lenses: Computer-mediated communication and language. Journal of Language and Social Psychology, 31(4), 397-414.

Yus, F. (2011). Cyberpragmatics: Internet-mediated communication in context. John Benjamins Publishing Company.

Jeong, K. O. (2019). Online collaborative language learning for enhancing learner motivation and classroom engagement. International Journal of Contents, 15(4).

Wong, Z. Y., & Liem, G. A. D. (2022). Student engagement: Current state of the construct, conceptual refinement, and future research directions. Educational Psychology Review, 34(1), 107-138.

Chametzky, B. (2013). Offsetting the affective filter: A classic grounded theory study of post-secondary online foreign language learners. Northcentral University.

Hajiyeva, B. (2024). Language Anxiety in ESL Learners: Causes, Effects, and Mitigation Strategies. EuroGlobal Journal of Linguistics and Language Education, 1(1), 119-133.

Cho, H. (2017). Synchronous web-based collaborative writing: Factors mediating interaction among second-language writers. Journal of Second Language Writing, 36, 37-51.

Kalyuga, S. (2011). Informing: A cognitive load perspective. Informing Science, 14, 33.

Yousif, J. H. (2025). Artificial Intelligence Revolution for Enhancing Modern Education Using Zone of Proximal Development Approach. Applied Computing Journal, 386-398.

Zainuddin, D. A., & Patak, A. A. (2024). Bridging Distance Learning: Insights into Synchronous and Asynchronous Approaches for Enhancing English Speaking Skills. Tamaddun, 23(2), 327-347.

Aithal, P. S., & Aithal, S. (2023). How to empower educators through digital pedagogies and faculty development strategies. International Journal of Applied Engineering and Management Letters (IJAEML), 7(4), 139-183.

Deffner, D., Rohrer, J. M., & McElreath, R. (2022). A causal framework for cross-cultural generalizability. Advances in methods and practices in psychological science, 5(3), 25152459221106366.

Singh, A. (2024). The future of learning: AI-driven personalized education. Available at SSRN 5076438.