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# Perceptions of EFL Teacher Educators, Pre-service Teachers, and In-service Teachers about Employing Corpus-based Language Pedagogy (CBLP) Knowledge in their Work

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**Abstract**

A thorough literature review revealed that employing a corpus-based approach in language pedagogy remains largely unknown to most foreign language teachers in the Iranian context. Relying on a sequential exploratory mixed-methods study, the present researchers developed and validated an interview guide and conducted interviews with 20 Teaching English as a Foreign Language (TEFL) experts (i.e., teacher trainers), 20 in-service teachers at high schools, and 20 pre-service teachers to find how they would employ Corpus-Based Language Pedagogy (CBLP) in their work. Then, the researchers employed a researcher-made and validated CBLP scale to elicit the perceptions of 30 teacher educators, 118 pre-service, and 147 in-service EFL teachers about employing CBLP in their work. The interview data were analyzed through content analysis revealing that CBLP could be used in teaching language assessment, learning technological knowledge, and developing teaching materials. Multivariate ANOVA (MANOVA) was used to analyze the quantitative data revealing discrepancies among the perceptions of the three groups of in-service teachers, teacher educators, and pre-service teachers with regard to employ CBLP in their work. The findings can be used to develop a specific course aiming at enriching CBLP for language teachers in the Iranian EFL teacher education programs.

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## Introduction

Research has shown that linguistics corpora can be used to develop materials, present natural language to the L2 classroom, and to do research based on already available and categorized data (Friginal, 2018). Due to the naturalness and authenticity of such data, corpus linguistics researchers could use the data in their studies (Ma, 2024). With respect to the significance of corpus linguistics (CL), Corpus-Based Language Pedagogy (CBLP) is defined as "integrating corpus literacy into language pedagogy in real classroom settings, which requires considering how to represent and formulate the knowledge/ skills of corpus linguistics and how to integrate such knowledge/ skills by designing appropriate classroom teaching activities" (Ma et al., 2021, 5).

The present researchers' claims about what is necessary to be included in a CBLP model, despite some overlap, revolve around two main points: firstly, the ability to effectively use corpus data as a learning tool and focus on CL(Ma et al., 2021) and secondly, the ability to integrate corpus use and resources into language classrooms and consider different aspects of pedagogical content knowledge (PCK) such as technology, assessment, teaching methods, teaching strategies, and practicum development which could be affected by a CBLT pedagogical model (Amiri et al., 2024; Ma, 2024).

A corpus-based linguistic approach could be employed in the TEFL teacher education programs (Boulton, 2017; Callies, 2019; Chambers, 2019; Ma, 2024). Moreover, in the Iranian TEFL teacher education program little place has been given to corpus-based literacy and its related technologies. Among the number of studies conducted with regard to applying corpus linguistics to language teaching classroom in the Iranian EFL context, one can refer to the impact of CBLP on L2 vocabulary development (Ashkan & Seyyedrezaei, 2016; Jalilifar et al., 2014), non-congruent idioms (Estefaei & Amjadiparvar, 2019), and written errors of Iranian EFL learners (Khansir & Pakdel, 2020).

Research in different aspects of EFL education in Iran provides evidence of high school students' limited performance in English (Ganji et al., 2018; Nezakatgoo, 2018; Sahragard et al., 2014). To teach different skills and components more effectively, foreign language teachers need a relatively acceptable knowledge of corpus-linguistics and mastery over CBLP (Amiri et al., 2024). Another issue to focus on is the less success of students in the English classes at the formal educational setting like that of the high schools in Iran which could be partly because of the incomplete PCK (Mahmoodi et al., 2019a) and CBLP knowledge of their teachers. Mahmoodi1, et al., (2019a) reported that EFL learners were more successful and their L2 development was facilitated and enhanced both in quality and quantity following their teachers' in-service training and knowledge appraisal. In addition, Mahmoodi et al. (2019b) found that "in-service education and training (INSET) courses were influential in developing teachers' knowledge base" (p. 1). Despite plenty of international research about theoretical and practical aspects of CBLP (Al-Gamal & Ali, 2019; Biber, 2006; Çalişkan & Gönen, 2018; Cotos, 2017; Dong & Lu, 2020; Ma et al., 2021), as mentioned previously, there is still paucity of research about CBLP in the EFL teacher training programs in general and in the Iranian EFL setting in particular. Also, even though CK, PCK, and CBLP have received attention in teacher education

during the past few decades, this post-method approach has not received especial attention in the Iranian EFL teacher educational system. In the present study, the CBLP of the EFL teachers in the Iranian teacher training program was addressed through the perspectives of the pre-service teachers, in-service teachers, and teacher educators.

## 1. Literature Review

One of the concerns of language teacher education is making teachers competent enough to enjoy a good performance in the L2 classroom context. Hence, both teacher training programs preparing the pre-service teachers and in-service teacher training courses need focus on successful methods which can enhance teacher's capacities in this respect. Considering the success of corpus-based learning and the empirical research evidence in this respect (see Boulton & Cobb, 2017), educators have recently focused on the development of CBLP (Faxriddinovna, 2021; Ma et al., 2021, 2024; Wei, 2021).

In a successful CBLP, both CL knowledge and discourse-based teaching take significance (Ma et al., 2021; Wei, 2021). As part of one's discourse literacy, CL encompasses familiarity with the concept of a corpus, knowledge of the capabilities and limitations of corpus research, proficiency in the analysis of corpus data, and ability to derive inferences about language usage from corpus data (Ma et al., 2021). With respect to the skills needed in teacher training Leńko-Szymańska (2017) outlined that technical, corpus linguistics, and pedagogical abilities are deemed crucial in teacher preparation. In addition, he stressed that pedagogical abilities center on the development and implementation of instructional materials based on corpora.

The second major challenge with CBLP is the selection of appropriate topics for instruction. Ideally, it would cover everything that has to do with learning a language, including language skills along with vocabulary and grammar. However, most of the studies in this respect have focused on vocabulary (Ashkan & Seyyedrezaei, 2016; Çalişkan & Gönen, 2018; Jalilifar et al., 2014; Lee et al., 2020) and reading comprehension (Angele et al., 2015; Ciobanu et al., 2006; Daud et al., 2013; Gardner, 2008; Lété, 2003; Lopukhina et al., 2021), while less attention has been paid to grammar (Bhargavi & Anbazhagan, 2020; Farr, 2008; Heather & Helt, 2012; Lin, 2016; Liu & Jiang, 2009; Zareva, 2017) writing (Almutairi, 2016; Casañ-Pitarch & Calvo-Ferrer, 2015; Lu et al., 2021; Paz, 2020; Qoura, Hassan, & Mostafa, 2018; Yoon, 2005), listening and speech synthesis (Nesi, 2005; Su, 2021), and speaking (Biber, 2006; Casañ-Pitarch & Calvo-Ferrer, 2015; Fauzi, 2021).

The third key concept in employing CBLP is focusing on the practical outcome of the teaching through the corpus techniques. In line with some previous studies (Farr, 2008; Heather & Helt, 2012), Ma et al. (2021) stressed that there is a dearth of systematic evaluations concerning the learning outcomes in studies investigating corpus-based teacher training. Some studies reporting on this scope have also mainly relied on qualitative data ( Farr, 2008; Heather & Helt, 2012) and the empirical evidence in this respect is very rare (Leńko-Szymańska, 2014, 2017).

The fourth issue which can be raised is extending the scope of existing studies to develop a pedagogical program for training teachers with respect to corpus linguistics. This requires enhancing the pre-service and in-service teachers' CL and helping them get mastery over using

the corpora in their classroom performances (Ma et al, 2024). In this respect, Friginal (2018) enumerated the tools, on-line resources, and classroom activities. Likewise, Ma et al. (2021) differentiated between CL and CBLP and among Arab EFL student teachers, Abdel Latif (2021) brought attention to the potential processes of CL instruction in foreign language teacher education.

The existing literature on the subject of teacher training consists of a small number of empirical investigations. Either new courses or current courses within a program incorporate corpus-based training (e.g., Callies, 2019; Leńko-Szymańska, 2017; Farr, 2008; Heather & Helt, 2012; Zareva, 2017). Likewise, some studies have considered the merits and demerits of the corpus-based approach in teaching ESP courses (Chirobocea, 2017). However, the way teacher educators might employ them in their pedagogical activities is not clarified. Among the works specifically focusing on the applications of corpus linguistics in the teacher training domain, we can refer to Friginal (2018) who highlighted the role of instruments, on-line resources, and classroom activities in this respect. Also, Osipova and Sergeevna Osipova (2018) found that using corpus linguistics technology in the EFL classroom provides students with a more critical view of the English language and a better understanding of certain linguistic phenomena.

Among the seminal works reporting on the CBLP, Ma et al. (2021) developed a CBLP syllabus for Teaching English to Speakers of Other Languages (TESOL) teachers through a two-step training approach facilitated by online collaboration. They developed a CL syllabus for the TESOL teachers, trained them in this respect, and then followed their practice to see the effectiveness of the training procedure which was, of course, successful. In the same vein, Wei (2021), in his review of corpus-based foreign language teaching research, highlighted the three areas corpus-based teaching platform, teaching model, and textbook compilation and syllabus design with respect to CBLP. In addition, some studies have highlighted that teachers' familiarity with tools and applications of linguistic corpora plays a significant role in designing classroom techniques, teaching language components and language skills (Faxriddinovna, 2021; Abdel Latif, 2021). Schmidt (2023) studied how CBLP affects second language writing instructors' teaching strategy development. He found that while acknowledging the necessity for ongoing, long-term assistance, instructors reported feeling more confident in using direct corpus approaches. Moreover, Ortikov (2023) found that teachers can improve their students' language skills and their ability to communicate effectively by using corpus analysis in the creation of instructional materials.

In the field of language education, research into data-driven learning (DDL) is gaining traction and is finding its way into teacher preparation programs around the world. Nevertheless, there is a persistent problem with evaluating the (self-reported) CL of teacher trainees and how it affects their ability to effectively incorporate corpora into language instruction in the long run (Chung et al., 2024). Moreover, Ma (2024) explored the possibility of CBLP as a novel strategy for teaching languages, with a focus on future and current educators and found that CBLP is a relatively new academic discipline which uses corpus technology to bring together linguistic theory and language teaching practice in order to improve students' language acquisition. In another recent study, Ma et al. (2024) examined a

case study of two EFL instructors developing CBLP. They stated that CBLP's creation was an interesting and intricate process because it involved the direct application of corpus technology to classroom instruction. Their findings suggest the utilization of five areas of teacher knowledge and practice in CBLP development. 1) familiarity with the English language; 2) skill with corpus technology; 3) understanding of effective teaching methods; 4) familiarity with relevant contexts; and 5) experience in the field.

Reports pertaining to the Iranian TEFL teacher education program, however, indicates little attention paid to using CBLP in this program. Irrespective of emphasizing technology in the language education and focusing on technological, pedagogical, and content knowledge (TPACK), the current TEFL teacher education program offers no account of employing corpus-based language teaching (Aliakbari & Tabatabaei, 2019; Fathi & Yousefifard, 2019; Maghsoudi, 2021; Raygan & Moradkhani, 2020). Finally, it can be argued that the formation of CBLP relies heavily on teachers' learning and practice. It is expected that teacher educators, pre-service teachers, and in-service teachers' pay attention to enhancing their CBLP development and implement their CLP knowledge in their work. The following research questions were raised to fulfill the present study purposes.

1. To what extent do the EFL teacher educators, pre-service teachers, and in-service teachers employ CBLP knowledge in their work?
2. To what extent do the CBLP perceptions of TEFL student-teachers differ from those of in-service teachers?
3. To what extent do the CBLP perceptions of TEFL student-teachers and in-service teachers differ from those of teacher educators?

## 2. Method

The participants of the study for the qualitative phase were 20 experts (teacher trainers), 20 EFL in-service teachers at high schools, and 20 TEFL pre-service teachers who were interviewed to find how well they employed CBLP in their work. In addition, 30 teacher educators, 118 pre-service, and 147 in-service EFL teachers took part in the quantitative phase of the study and filled out a CBLP questionnaire representing the participants' familiarity with CBLP principles, as well (all were selected from Farhangian and Azad Univesities in Tehran).

Data were collected through an interview guide which was piloted and validated through Delphi model with 10 TEFL experts and a researcher-made and validated questionnaire of CBLP with 39 items covering nine areas of corpus linguistics literacy, CBLP principles, CBLP in language teachers' technological knowledge, developing teaching materials, teaching/learning grammar, teaching/ learning vocabulary, doing testing and assessment, teaching/ learning L2 reading and writing, and finally teaching/ learning L2 listening and speaking. The total reliability of $\alpha$=.902 was estimated for the questionnaire based on Cronbach Alpha and its construct validity was confirmed through factor analysis.

## 3. Results

### 3.1 Research Question One

The first research question aimed to find the extent to which the EFL teacher educators, pre-service teachers, and in-service teachers would employ CBLP in their work. As the results of interview data analysis displayed in Table 1 show, both teacher educators and pre-service teachers were keener to use corpora or data-driven techniques in their work than the in-service teachers. For example, in terms of believing that CBLP encourages learners made use of authentic materials to expand their L2 vocabulary knowledge, the majority of teacher educators and pre-service teachers (83.33%) agreed with this notion, while for the in-service teachers, it was 16.66%. Moreover, only high percentage of teacher educators signified that within the domain of CBLP, corpora could be used as a reliable and authentic source of authentic language to be used for materials development, developing tests, and constructing tasks.

In addition, the interviewees referred to the valuable use of CBLT in helping teachers have access to a variety of linguistic forms in the oral and written modes. As the interviewees mentioned, *corpora can provide many examples of the target feature (e.g. a vocabulary item or grammatical structure) in a concentrated manner, to help learners better understand the feature, its contexts, and co-texts of use*".

**Table 1.** *Main Themes and Categories; Employing CBLP Knowledge in One's Work*

| Themes | Selected codes | TT | | PST | | IST | |
|---|---|---|---|---|---|---|---|
| | | *F* | *%* | *F* | *%* | *f* | *%* |
| CBLP in Teaching/ Learning Testing & Assessment | 1. CBLP encourages learners make use of authentic materials to expand their L2 vocabulary knowledge | 18 | 50.00 | 12 | 33.33 | 6 | 16.66 |
| | 2. Corpus linguistics can help teachers analyze test items by comparing them with the frequency and distribution of grammatical structures and discourse features in relevant corpora. | 16 | 53.33 | 10 | 33.33 | 4 | 13.33 |
| | 3. Corpus linguistics can help teachers analyze test items by comparing them with the frequency and distribution of words and phrases in relevant corpora. | 16 | 42.10 | 12 | 31.57 | 10 | 26.31 |
| | 4. CBLP helps learners assess their language skills by comparing their performance with the available texts | 20 | 47.61 | 14 | 33.33 | 8 | 19.04 |
| | 5. Learner corpora can be used for testing and assessing L2 proficiency | 18 | 47.36 | 12 | 31.57 | 8 | 21.05 |
| | 6. For learner corpora to be of use for assessment, researchers need to develop and operationalize a text- | 16 | 44.44 | 12 | 33.33 | 8 | 22.22 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | centered description of language proficiency | | | | | | |
| CBLP in Technological Knowledge | 7. A concordance or KWIC (key words in context) can help learners solve linguistic issues by providing authentic samples | 20 | 43.47 | 16 | 34.78 | 10 | 21.73 |
| | 8. Open-access corpora, i.e. freely-available online, or requiring only registration are recommend in the process of the corpus-based teaching EFL. | 18 | 47.36 | 12 | 31.57 | 8 | 21.05 |
| | 9. Relying on technology, CBLP helps EFL learners advance their hypotheses on the basis of their observations and test them against the evidence provided by the corpus | 20 | 43.47 | 16 | 34.78 | 10 | 21.73 |
| | 10. Before using corpus linguistics technology in teaching EFL it is essential to form an instrumental competence | 18 | 40.90 | 14 | 31.81 | 12 | 27.27 |
| | 11. Teachers and learners need to develop the ability to work effectively with the KWIC tool, which allows to generate concordance lists | 18 | 47.36 | 14 | 36.84 | 6 | 15.78 |
| CBLP in Developing Teaching Materials | 12. Corpora provides teachers with a valuable source to develop their materials for the L2 classroom | 16 | 42.10 | 12 | 31.57 | 10 | 26.31 |
| | 13. Corpora provides many examples of the target feature (e.g. a vocabulary item or grammatical structure) in a concentrated manner, to help learners better understand the feature, its contexts, and co-texts of use. | 18 | 47.36 | 12 | 31.57 | 8 | 21.05 |
| | 14. Corpora can be used for both linguistics research and compiling dictionaries | 20 | 43.47 | 14 | 30.43 | 12 | 26.08 |
| | 15. CBLP relies on corpora to make learners read authentic materials | 18 | 42.85 | 14 | 33.33 | 10 | 23.80 |
| | 16. Corpora can be used to develop language teaching syllabuses | 16 | 61.53 | 8 | 30.76 | 2 | 07.69 |
| | 17. Corpora can be used to develop lessons, practices, and extra-curricular foreign language learning activities | 16 | 44.44 | 12 | 33.33 | 8 | 22.22 |

Among the frequently highlighted notions interviewees focused on, we can refer to the role of CBLP in developing linguistics research and compiling dictionaries and developing corpus-based language teaching syllabuses. The latter, however, was mainly signified by the teacher educators (61.53%) and pre-service teachers (30.76%), not by the in-service teachers (7.69%).

It can be concluded that majority of the teacher educators taking part in the study highlighted the enrichment of three areas of learning testing and assessment, expanding technological knowledge, and developing teaching materials as the side benefits of employing a CBLP in their work. However, these domains were proposed by 33.33 % of the pre-service teachers, showing their relative familiarity with using a CBLP in the L2 classroom. However, as displayed in Table 4.5, only 13.33 % of the in-service teachers use corpora in the test analysis procedures, and 22.22 % of them use corpora as an educational source or instructional aid in their work.

## 3.2. Research Question Two

**Table 2.** *Descriptive Statistics; CBLP Questionnaire by Pre-service and In-service EFL Teachers*

| Dependent Variable | Group | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| CL Literacy | Pre-service | 2.900 | .053 | 2.795 | 3.004 |
| | In-service | 2.449 | .048 | 2.355 | 2.542 |
| CBLP Principles | Pre-service | 3.010 | .052 | 2.908 | 3.112 |
| | In-service | 2.447 | .046 | 2.355 | 2.538 |
| CBLP in Grammar | Pre-service | 2.968 | .046 | 2.877 | 3.058 |
| | In-service | 2.492 | .041 | 2.411 | 2.573 |
| CBLP in Vocabulary | Pre-service | 2.688 | .045 | 2.600 | 2.776 |
| | In-service | 2.358 | .040 | 2.279 | 2.437 |
| CBLP in Assessment | Pre-service | 2.585 | .041 | 2.504 | 2.666 |
| | In-service | 2.332 | .037 | 2.260 | 2.405 |
| CBLP R & WR | Pre-service | 2.576 | .043 | 2.492 | 2.660 |
| | In-service | 2.221 | .038 | 2.145 | 2.296 |
| CBLP T. Knowledge | Pre-service | 2.893 | .051 | 2.792 | 2.994 |
| | In-service | 2.432 | .046 | 2.341 | 2.522 |
| CBLP in Lis & Sp. | Pre-service | 2.944 | .052 | 2.843 | 3.046 |
| | In-service | 2.476 | .046 | 2.385 | 2.567 |
| CBLP in Materials | Pre-service | 2.735 | .040 | 2.657 | 2.813 |
| | In-service | 2.149 | .035 | 2.079 | 2.219 |

The second research question aimed to find the extent to which the CBLP perceptions of TEFL pre-service teachers differ from those of in-service teachers. A Multivariate ANOVA (MANOVA) was run to compare the pre-service and in-service teacher groups' means on components of CBLP questionnaire in order to probe the second research question. The assumptions of homogeneity of variances of groups and homogeneity of covariance matrices were checked in advance. Table 2 displays the pre-service and in-service EFL teachers' groups' means on components of the CBLP questionnaire. The results showed that the pre-teachers had higher means than the in-service teachers across components of CBLP.

Table 3 displays the results of MANOVA. The results ($F (9, 255) = 16.36$, $p < .05$, $p\eta^2 = .368$ representing a large effect size) indicated that there was a significant difference between pre-service and in-service groups' overall means on CBLP questionnaire. It is notable to find that Partial Eta Squared should be interpreted using the following criteria; .01 = Weak, .06 = Moderate, and .14 = Large (Pallant, 2016, 285). Thus, the first null hypothesis was rejected.

**Table 3.** *Multivariate Tests Overall CBLP Questionnaire by Pre-Service and In-Service Groups*

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| Intercept | Pillai's Trace | .982 | 1493.158 | 9 | 255 | .000 | .982 |
| | Wilks' Lambda | .018 | 1493.158 | 9 | 255 | .000 | .982 |
| | Hotelling's Trace | 53.116 | 1493.158 | 9 | 255 | .000 | .982 |
| | Roy's Largest Root | 53.116 | 1493.158 | 9 | 255 | .000 | .982 |
| Group | Pillai's Trace | .368 | 16.369 | 9 | 255 | .000 | .368 |
| | Wilks' Lambda | .632 | 16.369 | 9 | 255 | .000 | .368 |
| | Hotelling's Trace | .582 | 16.369 | 9 | 255 | .000 | .368 |
| | Roy's Largest Root | .582 | 16.369 | 9 | 256 | .000 | .368 |

Table 4 displays the results of the Between-Subject Effects. Based on these results and the means displayed in Table 2 it can be concluded that;

A: pre-service teachers had a higher mean than in-service teachers on corpus linguistics literacy, principles of CBLP, using CBLP in teaching/ learning grammar, L2 vocabulary, testing and assessment, L2 reading and writing, and L2 listening and speaking.

B: pre-service teachers had a higher mean than the in-service teachers on using CBLP in language teachers' technological knowledge and developing teaching materials.

**Table 4.** *Tests of Between-Subjects Effects Components of CBLP Questionnaire by Pre-Service and In-Service Groups*

| Source | Dependent Variable | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| Group | CL Literacy | 13.208 | 1 | 13.208 | 39.911 | .000 | .133 |
| | CBLP Principles | 20.637 | 1 | 20.637 | 65.887 | .000 | .202 |
| | CBLP in Grammar | 14.700 | 1 | 14.700 | 59.794 | .000 | .186 |
| | CBLP in Vocabulary | 7.080 | 1 | 7.080 | 30.180 | .000 | .104 |
| | CBLP in Assessment | 4.167 | 1 | 4.167 | 21.051 | .000 | .075 |
| | CBLP R & WR | 8.209 | 1 | 8.209 | 38.543 | .000 | .129 |
| | CBLP in Lis & Sp. | 14.251 | 1 | 14.251 | 45.468 | .000 | .148 |
| | CBLP T. Knowledge | 13.843 | 1 | 13.843 | 45.103 | .000 | .147 |
| | CBLP in Materials | 22.309 | 1 | 22.309 | 121.983 | .000 | .319 |
| Error | CL Literacy | 86.372 | 263 | .331 | | | |
| | CBLP Principles | 81.751 | 263 | .313 | | | |
| | CBLP in Grammar | 64.167 | 263 | .246 | | | |
| | CBLP in Vocabulary | 61.227 | 263 | .235 | | | |
| | CBLP in Assessment | 51.659 | 263 | .198 | | | |
| | CBLP R & WR | 55.591 | 263 | .213 | | | |
| | CBLP in Lis & Sp. | 81.805 | 263 | .313 | | | |
| | CBLP T. Knowledge | 80.105 | 263 | .307 | | | |
| | CBLP in Materials | 47.734 | 263 | .183 | | | |
| Total | CL Literacy | 1945.438 | 263 | | | | |
| | CBLP Principles | 2015.880 | 263 | | | | |
| | CBLP in Grammar | 2001.000 | 263 | | | | |
| | CBLP in Vocabulary | 1718.313 | 263 | | | | |
| | CBLP in Assessment | 1627.875 | 263 | | | | |
| | CBLP R & WR | 1551.920 | 263 | | | | |
| | CBLP in Lis & Sp. | 1922.625 | 263 | | | | |
| | CBLP T. Knowledge | 1991.250 | 263 | | | | |
| | CBLP in Materials | 1597.188 | 263 | | | | |

### 3.3 Research Question Three

The third research question aimed at finding the extent to which the CBLP perceptions of TEFL pre-service teachers and in-service teachers differ from those of teacher educators. A Multivariate ANOVA (MANOVA) was run to compare the teacher educators and pre- and in-service EFL teachers' means on components of CBLP questionnaire in order to probe this research question. The assumptions of homogeneity of variances of groups and homogeneity of covariance matrices were checked and confirmed.

Table 5 displays the teachers, and pre-service teachers' means on components of CBLP questionnaire. Again, the results showed that the EFL teacher educators had higher means than the pre- and in- service teachers across components CBLP.

**Table 5.** *Descriptive Statistics CBLP Questionnaire by Groups*

| Dependent Variable | Group | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| Corpus Linguistics Literacy | Teachers | 2.649 | .043 | 2.565 | 2.734 |
| | T. Educators | 3.517 | .130 | 3.262 | 3.772 |
| Principles of CBLP | Teachers | 2.697 | .044 | 2.610 | 2.784 |
| | T. Educators | 3.607 | .133 | 3.344 | 3.869 |
| CBLP in Teaching/ Learning Grammar | Teachers | 2.703 | .037 | 2.630 | 2.777 |
| | T. Educators | 3.807 | .112 | 3.587 | 4.027 |
| CBLP in Teaching/ Learning Vocabulary | Teachers | 2.505 | .036 | 2.434 | 2.576 |
| | T. Educators | 3.629 | .109 | 3.415 | 3.844 |
| CBLP in Teaching/ Learning Testing & Assessment | Teachers | 2.445 | .034 | 2.378 | 2.511 |
| | T. Educators | 3.491 | .102 | 3.291 | 3.691 |
| CBLP in Teaching/ Learning L2 Reading &Writing | Teachers | 2.379 | .034 | 2.311 | 2.446 |
| | T. Educators | 3.759 | .103 | 3.555 | 3.962 |
| CBLP in Teaching/ Learning L2 Listening & Speaking | Teachers | 2.684 | .038 | 2.609 | 2.760 |
| | T. Educators | 3.871 | .115 | 3.644 | 4.098 |
| CBLP in Language Teachers' Tec. Knowledge | Teachers | 2.637 | .041 | 2.555 | 2.718 |
| | T. Educators | 3.491 | .125 | 3.246 | 3.737 |
| CBLP in developing teaching materials | Teachers | 2.410 | .035 | 2.341 | 2.479 |
| | T. Educators | 4.060 | .106 | 3.853 | 4.268 |

Table 6 displays the results of MANOVA. The results ($F (9, 285) = 39.65$, $p < .01$, $p\eta^2 = .559$ representing a large effect size) indicated that there was significant difference between the EFL teacher educators and EFL teachers' overall means on CBLP questionnaire. Thus, the second null-hypothesis was rejected.

**Table 6.** *Multivariate Tests Overall CBLP Questionnaire by Groups*

| | Effect | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| Intercept | Pillai's Trace | .950 | 595.409 | 9 | 285 | .000 | .950 |
| | Wilks' Lambda | .050 | 595.409 | 9 | 285 | .000 | .950 |
| | Hotelling's Trace | 19.002 | 595.409 | 9 | 285 | .000 | .950 |
| | Roy's Largest Root | 19.002 | 595.409 | 9 | 285 | .000 | .950 |
| Group | Pillai's Trace | .559 | 39.656 | 9 | 285 | .000 | .559 |
| | Wilks' Lambda | .441 | 39.656 | 9 | 285 | .000 | .559 |
| | Hotelling's Trace | 1.266 | 39.656 | 9 | 285 | .000 | .559 |
| | Roy's Largest Root | 1.266 | 39.656 | 9 | 285 | .000 | .559 |

Table 7 displays the results of the Between-Subject Effects. Based on these results and the means displayed in Table 5, it can be concluded that;

A: The EFL teacher educators (M = 3.51) had a higher mean than the pre- and in-service teachers (M = 2.64) on corpus linguistics literacy (F (1, 293) = 40.38, $p < .01$, $p\eta^2 = .122$ representing a moderate effect size). Since assumption of homogeneity of variances was violated, except for G, all results were reported at .01 instead of .05.

B: The EFL teacher educators had a higher mean than the pre- and in-service teachers on principles of CBLP, using CBLP in teaching/ learning grammar, L2 vocabulary, testing and assessment, L2 reading and writing, and L2 listening and speaking.

C: The EFL teacher educators had a higher mean than the pre- and in-service teachers on using CBLP in language teachers' technological knowledge and developing teaching materials.

**Table 7.** *Tests of Between-Subjects Effects Components of CBLP by Groups*

| Source | Dependent Variable | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| Group | CL Literacy | 19.679 | 1 | 19.679 | 40.383 | .000 | .122 |
| | CBLP Principles | 21.609 | 1 | 21.609 | 41.904 | .000 | .126 |
| | CBLP in Grammar | 31.805 | 1 | 31.805 | 87.521 | .000 | .232 |
| | CBLP in Vocabulary | 33.032 | 1 | 33.032 | 96.024 | .000 | .249 |
| | CBLP in Assessment | 28.606 | 1 | 28.606 | 95.617 | .000 | .248 |
| | CBLP R & WR | 49.736 | 1 | 49.736 | 160.706 | .000 | .357 |
| | CBLP in Lis & Sp. | 36.757 | 1 | 36.757 | 95.168 | .000 | .247 |
| | CBLP T. Knowledge | 19.072 | 1 | 19.072 | 42.258 | .000 | .127 |
| | CBLP in Materials | 71.167 | 1 | 71.167 | 220.439 | .000 | .432 |
| Error | CL Literacy | 141.321 | 293 | .487 | | | |
| | CBLP Principles | 149.547 | 293 | .516 | | | |
| | CBLP in Grammar | 105.386 | 293 | .363 | | | |
| | CBLP in Vocabulary | 99.759 | 293 | .344 | | | |
| | CBLP in Assessment | 86.761 | 293 | .299 | | | |
| | CBLP R & WR | 89.751 | 293 | .309 | | | |
| | CBLP in Lis & Sp. | 112.009 | 293 | .386 | | | |
| | CBLP T. Knowledge | 130.883 | 293 | .451 | | | |
| | CBLP in Materials | 93.625 | 293 | .323 | | | |
| Total | CL Literacy | 2345.938 | 295 | | | | |
| | CBLP Principles | 2440.320 | 295 | | | | |
| | CBLP in Grammar | 2447.800 | 295 | | | | |
| | CBLP in Vocabulary | 2131.750 | 295 | | | | |
| | CBLP in Assessment | 2012.313 | 295 | | | | |
| | CBLP R & WR | 1987.560 | 295 | | | | |
| | CBLP in Lis & Sp. | 2441.688 | 295 | | | | |
| | CBLP T. Knowledge | 2313.063 | 295 | | | | |
| | CBLP in Materials | 2098.875 | 295 | | | | |

## 4. Discussion

The first research question aimed to find the extent to which the EFL teacher educators, pre-service teachers, and in-service teachers employed CBLP in their work. The interview results showed that compared to in-service teachers, teacher educators and pre-service teachers are more interested in using CBLP in their work. This was manifested in using CBLP to enrich L2 assessment knowledge and practices, using technology, and materials development. On the other hand, the quantitative data pertaining to research questions second and third which compared the perceptions of the three groups of participants about CBLP from different perspectives, confirmed the findings of the qualitative phase of the study: The results of Multivariate ANOVA (MANOVA) showed that EFL teacher educators had higher means than the pre- and in-service teachers on different components of the CBLP questionnaire such as corpus linguistics literacy, familiarity with principles of CBLP, using CBLP in teaching/ learning L2 grammar, vocabulary, reading, writing, speaking, and listening. Moreover, the results revealed that EFL teacher educators had higher means than the pre- and in-service teachers on using CBLP in testing and assessment, enhancing and using technological knowledge, and developing teaching and learning tasks and materials. In addition, based on the questionnaire data analysis, pre-service teachers are more likely to understand CBLP and its application in the L2 classroom compared to the in-service EFL teachers.

When it comes to using corpora for language development, as the case of the present study, empirical data usually backs Boulton's (2010) claim that "the complete corpus of empirical research in DDL generates overwhelmingly beneficial reactions to DDL on the side of learners" (p. 140). For example, 22 Chinese learners improved their English reading comprehension with the use of corpus data, as demonstrated in the study by Johns et al. (2008). And Boulton (2017) looked at how 132 French college students improved their English vocabulary after using corpus data. Among the 49 ESL students surveyed by Charles (2011), 39 reported that corpora had improved their understanding of speech features and increased their awareness of their own use. In particular, participants showed improvement in higher-level discourse traits and learned specific lexico-grammatical terms related to different rhetorical roles in academic writing after finishing concordance work.

The present study findings can take support form Bardovi-Harlig et al.'s (2015) who did an experiment showing that corpus-informed input led to better spoken responses from 37 ESL learners. This showed that corpora can also help students learn pragmatics. Despite the promising outcomes of experimental investigations conducted by corpus linguists, also known as teacher-researchers, very few ordinary language instructors incorporate corpora into their classroom instruction (Boulton, 2017; Callies, 2019; Chambers, 2019).

Due to obstacles including technological issues, insufficient time and confidence, and the difficulty in locating suitable corpora, corpus technology has a restricted role in classroom instruction (Leńko-Szymańska, 2017; Naismith, 2017; Poole, 2020; Zareva, 2017). Boulton (2017), Chambers (2019), and Callies (2019) all agree that teacher preparation programs should do more to emphasize corpus training and its pedagogical importance. For instance, Callies (2019) conducted a poll of 26 active educators regarding their familiarity with corpora, revealing that more than 80% had never received training in corpora use.

The research focused on foreign language instructors, both future and current, were the subjects of the prepared research. Research by Chen et al. (2019), Ebrahimi and Faghih (2016), and Abdel Latif (2021) found that after undergoing corpus training, in-service teachers generally show positive views and want to use CBLP. Nevertheless, similar to previous research (Abdel Latif, 2021; Chen et al., 2019; Ebrahimi & Faghih, 2016), relatively few educators actively seek to include CBLP into their lesson plans. The most common reasons are not having enough time, thinking such technology is too complicated, or that it does not fit with their school curricula. Lastly, there is limited opportunity to observe how in-service teachers utilize CBLP in the classroom setting. Lin (2019) examined one early-career teacher's journey into using corpus technology, as well as the process of designing, implementing, and reflecting on his CBLP in a university English language class. The findings proved that one of the best ways for a teacher to improve their CBLP skills is through practical experience. Becoming a teacher capable of using corpora may also include a "complex, radical" process that entails a continual succession of modifications (Lin, 2019).

Ma et al. (2021) studied the process by which a cohort of future educators created their CBLP by using Shulman's (1987) pedagogical reasoning model. The approach identifies five crucial phases by analyzing the pedagogical logic behind instructors' PCK development for handling instruction. Understanding the material and why you are teaching it is the first step; creating effective lessons is the second. The third step is instruction, which includes managing and sequencing student learning, as well as the actual act of teaching in a classroom. In the latter two steps, known as assessment and reflection, educators assess their own performance and think critically about how their actions have affected their students. Ma et al. (2021) found that student teachers can successfully plan CBLP lessons by considering their students' needs, determining which language skills to emphasize, making an effort to help students who are struggling academically, and incorporating engaging activities and resources.

Iranian student teachers, also known as pre-service teachers, share a common trait with their counterparts across the country: they receive no opportunity to implement their CBLP courses. They can only cover the first two steps of understanding and transformation in class; thus, there's a big hole in their understanding of the full pedagogical reasoning process.

## Conclusion

The interview data showed that EFL teacher educators, pre-service teachers, and in-service teachers in Iran who were part of the EFL program knew a fair amount about CL and the basic ideas behind CBLP. It is evident that teacher educators have a greater understanding of corpus linguistics and CBPL compared to pre-service and in-service teachers. Furthermore, pre-service instructors exhibited greater familiarity with these ideas than their in-service counterparts. The findings from the quantitative data analysis indicated that both pre-service and in-service instructors possessed a moderate familiarity with the concepts of CBLP and its implementation in teaching and learning grammar, listening, and speaking. Nevertheless, they had devoted minimal attention to instructing and learning L2 reading and writing via CBLP. However, EFL teacher educators thought that CBLP and data-driven learning (DDL) were important for creating teaching materials and for teaching and learning L2 grammar, speaking,

and listening. They did not stress the importance of CBLP in testing, evaluating, and improving language teachers' technological skills.

EFL educators posit that engaging in CBLP will assist them in crafting corpus-based courses and demonstrate elevated levels of reflection. The findings indicated that although Iranian EFL teachers generally support the use of corpus technology in language training, they do not implement CBLP in their courses. Teachers can learn the basics of corpus technology with the help of specialized training and make concordance lines by searching for target linguistic elements in the corpus.

The findings indicated that TEFL teacher educators and pre-service teachers are knowledgeable about employing CBLP in L2 classrooms, citing its application in teaching grammar, vocabulary, and various language abilities. Farhangian University's CK and PCK courses, which pre-service teachers have focused on, have facilitated the advancement of a substantial degree of CBLP understanding. Nevertheless, high school in-service teachers showed minimal enthusiasm for employing CBLP in their practice and demonstrated a lack of structured information about CBLP. This emphasizes the importance of teaching educators to understand the benefits of CBLP and then motivating them to implement this instructional approach in their practice.

With respect to the positive record of CBLP in the L2 classroom (Bernardini, 2002; Boulton & Cobb, 2017; Ma, 2024; Ma et al., 2024) which represents the success of Data-Driven Learning (DDL) approach, using linguistic corpora and relying on CBLP are more highlighted. In the same vein, Ma (2024) underscores the necessity of developing CBLP for both pre-service and in-service teachers. This can be possible through paying attention to the PCK and CK courses TEFL pre-service teachers take during their teacher education program.

As Amiri et al. (2024) argue, while most pre-service EFL teachers are familiar with and interested in using technology in the L2 classroom, a lot of in-service teachers lack the necessary knowledge and skills to effectively use corpus technology in their classrooms to accomplish the lesson goals, making their learners aware of data-driven learning (DDL). The present study also showed that in-service teachers are not well familiar with CBLP and the TEFL teacher education program is in need of a course in CBLP in which the instructional values, strategies, and outcomes of such a course could be practiced in line with the objectives of TEFL teacher education program. Accordingly, the findings of the present study which have taken into account both PCK and TK which are needed by TEFL-pre-service teachers can be used as a source of developing a CBLP course for such teachers.

## Implications

The present study findings can shed light on developing a CBLP program aiming at empowering EFL pre-service teachers and in-service teachers to successfully plan CBLP lessons by considering their students' needs, determining which language skills to emphasize, making an effort to help students who are struggling academically, and incorporating engaging activities and resources. Corpus based language pedagogy could be employed by EFL teachers to provide learners with authentic corpora both in the spoken and written forms. Through informing learners about DDL and comparing their own performance with that of native

speakers, EFL teachers make their learners more aware of the intentions and ideas in what they are doing in the L2 classroom. The assumption is that designing a cognitive-based learning program supported by CBLP for EFL learners could facilitate their L2 learning (Ma, 2024; Paz, 2020; Qoura et al., 2018). EFL learners could employ CBLP techniques and strategies which can be carried out through off-line ad on-line interactions to meaningfully solve their L2 writing problems and enhance their writing self-assessment. In addition, EFL learners can enhance their L2 proficiency by employing corpora relying on data-driven and text-driven techniques (Chung et al., 2024; Ma et al., 2024; Schmidt, 2023). Finally, EFL program developers can focus their efforts on designing and delivering technology leadership components to provide students and teachers with appropriate professional development training and leadership competencies and technology leadership (Song, 2021).

Technology in general and corpus-based technology in particular offer a high degree of flexibility, workability, and independence (Naismith, 2017). However, only qualified teachers can provide students with the support necessary to use any educational technology device appropriately, and as Sweller (2020) argues, “wise teachers will discover how to turn distraction into focus by using students' individual technology skills to improve their ability to focus on learning” (p. 2). Appropriate professional development will also provide EFL teachers with the knowledge and skills to easily understand and use technology in their classes (Chung et al., 2024).

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