

# Use of Word Clouds for Task Based Assessment in Asynchronous E-Language Learning<sup>1</sup>

*Ayesha Perveen<sup>2</sup>, Virtual University of Pakistan, Lahore, Punjab, Pakistan*

## Abstract

Word clouds can be used as an effective tool for the teaching and learning processes in language learning, as the visual input during schemata activation, and other parts of the lesson, serve as manageable and meaningful target language input. There are emerging studies that explore their effectiveness, but less so with respect to their use in the online second language classroom. This study explores the effectiveness of word clouds for teaching English as a Foreign Language (EFL) in an asynchronous mode. The study used a mixed methods design and triangulation was used for data collection. The participant group, as bachelor's degree students at the Virtual University of Pakistan (VUP), were given word clouds based assessment activities in two communication skills courses: Eng 001 (305 students participated) and Eng 101 (1714 and 1516 students participated in two activities respectively). The scores of the students were analyzed to gauge the suitability of task-based assessment in an asynchronous mode. Furthermore, an online survey questionnaire was administered to seek their input on the assessment activities. A total of 272 (N= 272) students responded to the survey questionnaire. The results reflected that the students responded positively overall regarding the use of word clouds for reading comprehension and essay writing tasks but had mixed opinions about reading and writing skill improvement tasks. The study concludes that the use of word clouds for pre-reading and pre-writing activities for task-based EFL teaching in asynchronous learning environments can be effective with the constraints that are described.

## Resumen

Las nubes de palabras se pueden utilizar como herramientas eficaces para los procesos de enseñanza y aprendizaje en el aprendizaje de idiomas, ya que la visualización durante la activación de los esquemas y otras partes de la lección sirven como entrada manejable y significativa en el idioma de destino. Estudios emergentes exploran su efectividad, pero no con respecto a su uso en el aprendizaje en línea de una segunda lengua. Este estudio explora la efectividad de las nubes de palabras para enseñar inglés como lengua extranjera (EFL) de forma asincrónica. El estudio utilizó un diseño de métodos mixtos y triangulación para la recolección de datos. El grupo participante, como estudiantes de licenciatura en la Universidad Virtual de Pakistán (VUP), recibió actividades de evaluación basadas en nubes de palabras en dos cursos de habilidades de comunicación: Eng 001 (participaron 305 estudiantes) y Eng 101 (1714 y 1516 estudiantes participaron en dos actividades respectivamente). Se analizaron las puntuaciones de los estudiantes para medir la idoneidad de la evaluación basada en tareas en un modo asincrónico. Además, se administró un cuestionario de encuesta en línea para recabar su opinión sobre las actividades de evaluación. Un total de 272 (N = 272) estudiantes respondieron al cuestionario de la encuesta. Los resultados reflejaron que los estudiantes respondieron positivamente en general con respecto al uso de nubes de palabras para las tareas de comprensión de lectura y redacción de ensayos, pero tenían opiniones encontradas sobre las tareas de mejora de las habilidades de lectura y escritura. El estudio concluye que el uso de nubes de palabras para las actividades de pre-lectura y pre-escritura para la enseñanza del inglés como lengua extranjera basada en tareas en entornos de aprendizaje asincrónico puede ser eficaz con las limitaciones que se describen.

## Introduction

A word cloud is a graphic representation of the most frequently used words in a text (Kitchen, 2014). Word clouds got popularized from social networking websites for sharing information (Miley & Read, 2011), where such images were tagged to photos for the first time so that people could easily locate them. Gradually, they became more popular for highlighting keyword metadata from websites. This established their significance for highlighting keywords within a text especially due to the attractive visualization effects. Since word clouds permit learners to access key input among a vast amount of digital information on internet resources (Godwin-Jones, 2016), word cloud use for other purposes was emerged, one of which was to utilize them as educational tools.

### Word Clouds for Teaching English as a Second Language

When word clouds were being explored as effective educational technology tools to facilitate the teaching and learning, they were also experimented with the teaching of English as a second or foreign language. Word clouds can be quite helpful for teaching language, as the keywords become visualized through highlighted fonts and styles in the word cloud it acts as a digitized whiteboard for students. It can particularly

<sup>1</sup>This is a refereed article. Received: 4 November, 2020. Accepted: 25 January, 2021.

<sup>2</sup>[apvub4u@gmail.com](mailto:apvub4u@gmail.com), 0000-0001-9221-2139

help in vocabulary retention for visual learners, which may also facilitate integrated skills and entertain multiple learning styles.

Word clouds can be helpful in second language learning (Tafazoli et al., 2014) through enhancing all four as well as integrated skills for learners. They can be extremely useful for teaching reading and writing as well as summarizing content (McNaught & Lam, 2010), and can enhance the recall process in preparation for exams or other activities (Miley & Read, 2011). They can also help students in pre-reading and pre-writing activities. The keywords of a text can be used as prompts for reading comprehension, word-meanings activities, or writing small texts and can be used as predictors of a text or lesson to be taught. The activity of generating word clouds cannot only familiarize students with educational technology tools, but also help them in skimming, scanning, and outlining an essay. Word clouds can also help in reverse outlining after the students have completed their writing assignments. The generated keywords can also help in speaking as well as listening activities. They can be used in a pre-listening stage by focusing on keywords. Then teachers can discuss topics at ease as learners would already have imbibed vocabulary and can easily comprehend those words when spoken by teachers/peers. Thus, they aid students in imbibing new vocabulary. They can also be helpful in speaking through vocabulary input to help fluent speaking (Tafazoli et al., 2014). Word clouds can also be used both for analyzing literary characters by finding out their key traits as well as to write short stories through prompts.

### Task-based Language Teaching (TBLT) in Online Environments

Task-based language teaching (TBLT) refers to teaching a second or foreign language by incorporating meaningful real-life tasks, opposed to pedagogical activities and instructional 'tasks' into classroom instruction (Baralt & Gómez, 2017). It involves a needs analysis, task design period based on the needs assessment, sequencing of instructional activities leading up to the real-life task according to syllabus, and a suitable time frame for students to meaningfully engage and implement the assigned real-life task. Task-based assessment is also an integral part of TBLT (Long, 2015), which emphasizes the need to reflect on methodological principles and pedagogic procedures for TBLT with the intent for students to use language in a meaningful and real-life frame.

TBLT and learning in an online mode of education is much more challenging than face-to-face learning due to capturing and maintaining student attention and fostering community building (Baralt & Gómez, 2017). They consider TBLT in the online context to be different from TBLT face-to-face because of 5 factors: 1) a task that works well face-to-face may not be equally engaging in an online setting; 2) online students are distracted by technical and social aspects of interaction possibly resulting in a mismatch between students' and teachers' expectations; 3) communicative language teaching can be challenging in e-language learning environments; 4) video-based interaction may make students more self-conscious and 5) teachers need to place extra cognitive effort to transform traditional language teaching tools to the online mode of teaching. However, they consider technology a positive component of online teaching as it develops technological and web-based literacy skills for studying a language and may facilitate corrective feedback.

### Use of Word Clouds in Asynchronous E-Language Learning

Although a small body of research available so far recommends the use of word clouds in English language teaching (ELT) face-to-face classrooms (McNaught & Lam, 2010; Tafazoli et al., 2014), there are only a few studies that establish their use and significance in EFL online and blended learning contexts (Mansouri, 2015) and even fewer that explore their benefits in asynchronous online learning focusing only on possible uses through discussions rather than evidence based research ( de Noyelles and Reyes-Foster, 2015; Joyner, 2012). Moreover, to the best of the researcher's knowledge, there is little to no research to date that evaluates their use in asynchronous e-language learning environments exclusively. This paper aims to explore the effectiveness of the use of the word clouds in an asynchronous online mode of teaching and learning. Asynchronous online teaching and learning is the widely used around the world since the inception of e-learning because of the advantages it offers (i.e., the flexibility of time and space for study and contact with materials or teachers (Hrastinski, 2008). Perveen (2016) considers asynchronous learning self-paced and student-centered, scaffolded by discussions with fellow students but who need of an instructional design that keeps them motivated and engaged through devising instructional strategies aimed at developing critical thinking and higher-order learning skills. Therefore, this study used word clouds as part of tasks to be used in asynchronous assessment.

Word Clouds for Task Based Assessment in Asynchronous Language Learning

Considering the nature of online learning at the Virtual University of Pakistan, which primarily offers asynchronous course instruction, word cloud activities can be useful as part of in task-based assessment activities in an asynchronous mode of e-language learning. For this study, the inquiry into their effectiveness was explored through an action research study in which word cloud-based assignments were given to the students with explicit guidelines provided in writing as to how the activities should be completed.

**Research Questions**

Based on students' response to and performance in the word-cloud based activities, the study explored answers to the following research questions:

1. *What are students' perceptions about the use of word clouds in assessment activities?*
2. *In what ways do word clouds facilitate students' reading skill development?*
3. *To what extent do word clouds help in developing students' writing skills?*
4. *To what extent can word clouds be helpful as an educational technology tool in asynchronous English language learning?*

Significance of the Study

Although there are many studies on task-based assessment in ELT (Sarigöz & Fişne, 2019; Skehan & Luo, 2020; Gan & Leung, 2020), this study is significant because there is a limited amount of research on task-based assessment in asynchronous e-language learning that incorporates the creation of word clouds as part of a task-based activity for assessment purposes. The study will be useful for the future use of word clouds in online a/synchronous hybrid and blended EFL classrooms.

**Literature Review**Word Clouds Significance

A word cloud is a stylistic visualization of text to highlight the most frequently used words or phrases (McNaught & Lam, 2010) from any text like lecture notes, textbook chapters, or internet blogs (Miley & Read, 2011). They are a form of a word collage (Tafazoli et al., 2014) or a summarized representation of a text's primary topics (Kaptein et al., 2010). Pendergast (2010) calls them a folksonomy of texts with the potential to facilitate multiliteracies through scaffolding textual information with visuals rendering it a form of multimodal learning. As word clouds represent keywords in a text (Cui et al, 2010) they can assist in developing not only vocabulary but also reading skills as students must first read the whole text in order to determine the relevant keywords. The visual highlighting of selected words in different font sizes and colors based on their frequency of appearance in the work cloud generation (i.e., bigger font size signifies more token of that word input by students in the computer formation of the work cloud) renders a quick view of key concepts of a particular text (Gottron, 2009).

Word Cloud Generators

As far as the choice of word cloud generators is concerned, various studies show evidence of the use of multiple generators as equally beneficial. For example, Dumchoo (2018) investigates Thai students' English vocabulary retention through the use of Wordshift and reports positive views about Wordshift. Hakuta (2018) used Wordshift for identifying parts of speech and concluded that Wordshift is a facilitating tool. Tafazoli et al. (2014) used Wordle and reported positive results. McNaught & Lam (2010) also found Wordle quite useful for reading and writing in an ESL classroom. Warner & Jones (2011) focused on using multiple word cloud generators like Tagxedo, ABCya, Word Clouds, Wordshift and Wordle for teaching English.

Word Clouds for Enhancing English Language Skills

Word clouds can serve as an excellent pre-reading activity by requesting that students predict or identify possible key words. The key words act as stimulators that motivate students to further explore a text. Jumpakate (2020) explored students' and teachers' perceptions about the use of word clouds for a pre-reading activity and reported their positive opinion as they found them a source of motivation creating an interactive classroom environment. They can help students orientate themselves to the topics of the text and serve a schemata activation activities through predicting the topic/s of text to be read and (Baralt et al., 2011). They can assist in writing development through activities that require students to plan, draft, edit predications, text structure and/or argument thus leading to a final draft of a document to be used for

later practice-based activities (Harmer, 2004). Displayed in the prewriting phase, word clouds can help students brainstorm and generate ideas about the topics on which they have to write (Baralt et al., 2011) and provide relevant vocabulary to transform ideas into textual descriptions and explanations. They conducted an action research project to enhance the essay writing skills of students at an intermediate level in a Spanish foreign language classroom and found them to be very useful for language teaching and learning. They also found them quite useful for teachers as word clouds can make the teaching-learning process student-centered, as students not teachers are generating the word clouds. However, instructors can create word clouds themselves along with students and then ask students to compare the two, which serve as self-assessment of a text's main idea and topics for students. Mehrdad et al. (2016) conducted an experimental study for exploring the effect of word clouds on writing a discursive essay through collaborative practice and reported positive results. Filatova (2016) considers word clouds effective in reducing reading time, summarizing, learning spelling, meaning and collocations, improving vocabulary and rhetorical elements for writing skills. Mansouri (2015) conducted a study in which he compared the use of online flashcards and word clouds for vocabulary retention. The results showed that the group that used word clouds performed far better with respect to vocabulary retention. He therefore strongly recommends the use of word clouds as an effective tool for instruction. Mahmoodi and Talang (2013) conducted a study using wordshift (i.e., the change or replacement of a word for another) with respect to for analyzing long term vocabulary retention of students. The results of their study indicated significant positive results.

### Use of Word Clouds in Online Environments

Most of the studies about the use of word clouds in online environments explore their use in an online discussion. For example, Hamm (2011) evaluated students' opinions about a course, in which they converted these opinions into word clouds and posted them in online discussion forums. The results revealed that the activity engaged students in reflective practices and enabled them to assess their own and peers' performance. Similarly, Joyner (2012) used word clouds in an asynchronous threaded discussion for knowledge sharing through stimulating meaningful interaction. Students' lists of words were converted into word clouds that were posted in the discussion forum with prompts to inspire reflection and inquiry. The study elicited evidence of enhanced critical thinking through the use of word clouds.

De Noyelles and Reyes-Foster (2015) also explored the effectiveness of using word clouds in an online discussion forum in which 132 undergraduate students participated. They intended to establish whether using word clouds in online discussions shows a higher incidence of critical thinking and engagement. They reported that the students who analyzed texts using word clouds demonstrated moderately higher levels of critical thinking and engagement in comparison to the students who explored the same text in a conventional comprehension question activity with the questions structured in linear manner based on the text's format. Their study showed a positive relationship amongst critical thinking, engagement, and peer interaction through word-cloud based discussions. They recommended word cloud-based activities as stimulants for critical thinking and engagement in multiple educational contexts.

Xie and Lin (2019) used word clouds for analyzing the knowledge integration of 54 undergraduate students at a U.S. university by exploring online blog posts and making concept maps from them. The main concepts were provided to the treatment group in the form of word clouds while the control group got a list in alphabetic order of the same content. The results revealed that the treatment group demonstrated better knowledge integration by developing schema for meaningful learning with the help of word clouds

There is little research on using word clouds as tasks in asynchronous EFL classrooms with the particular focus as a task-based assessment. This study is an attempt to bridge this research gap.

## **Research Methodology**

### Research Design and Data Collection Procedure

The study used an exploratory sequential mixed methods design by incorporating both quantitative and qualitative data. The qualitative data was collected first followed by quantitative data, which were integrated for interpretation. The qualitative data was collected through observing students' performance in the given activities. Quantitative data was collected through a five-point Likert scale survey questionnaire and descriptive statistics were used to interpret the results.



Population, Sample and Sampling Technique

The study as an action research with the objective of examining task-based assessment in an university course with asynchronous delivery of language teaching and learning. The participants were among a population of bachelor’s students at the Virtual University of Pakistan who were enrolled in communication/foreign language courses (i.e., English 001 and English 101). These students were given word cloud-based assessment activities in two communication skills courses; English 001, in which 305 students participated and English 101, in which 1714 and 1516 students participated in two activities respectively. The activities were mainly used for formative assessment to prepare them for upcoming course exams, however, they were graded assignments. The grades had a relatively low weight in the overall final grade within the course. In English 101, the activities were sequenced and spread over the semester in the form of Assignments 1 and 2. A clear set of guidelines were provided to the students about how to complete the activities. Moreover, they could ask any questions via email and the course discussion board regarding any difficulties encountered. The scores of the students in the activities were analyzed to reflect their performance in the word cloud, task-based activities as this was the first time they were introduced to word clouds as part of the course. The following activities were given to the students:

1. *Select the prominent words from the given word cloud and create an essay outline. Then write an essay based on that outline after selecting a suitable title.*

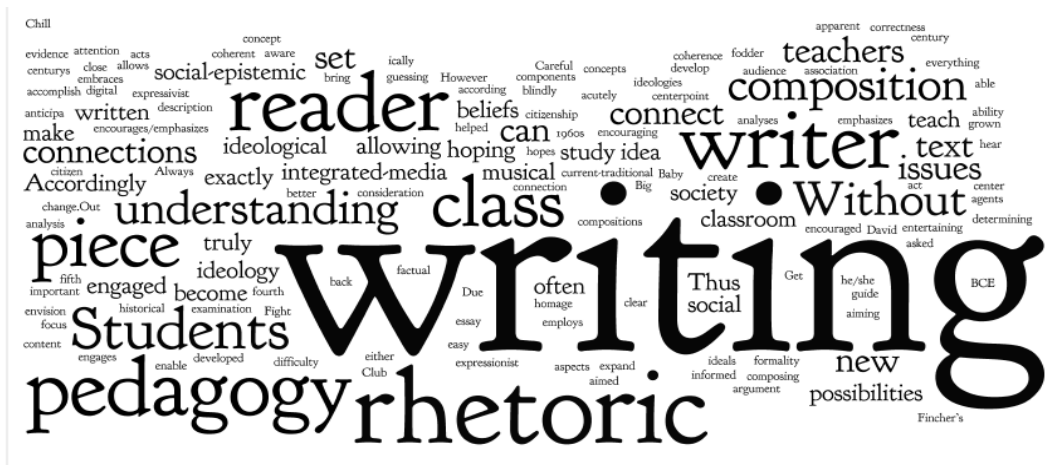


Figure 1: Activity 1

2. *Create a word cloud for the text provided and write an 'outline' for your essay based on the words in your word cloud. Paste the word cloud of the text you created as well.*
3. *Create a word cloud image for the given essay on 'Invading Personal Space' and write four suggestions on how to respond to the personal space of others using the prominent words in your word cloud image. Paste your word cloud image of the text as well.*

To further understand the perceptions and experiences of the participants, an online survey questionnaire was administered to seek their opinions after the completion of the above stated activities. It was fully optional on the part of the students to complete the questionnaire and they were informed that the purpose of the questionnaire was to collect their feedback regarding the task of word clouds creations given to them in the assignments. Only 272 students responded to the survey questionnaire. Descriptive statistics have been used to interpret the results.

Research Instrument

For this study, a survey questionnaire was the research instrument. The questionnaire was developed by the researcher. The face validity was determined by consultation with colleagues who were subject experts and with teaching experience of more than 15 years. It was piloted with 30 students and validated according to feedback. The reliability of the questionnaire on Cronbach’s alpha was 0.96. The initial part of the questionnaire collected demographic details. The questionnaire consisted of 31 items out of which 27 were based on a five-point Likert scale based on strongly disagree (SD), disagree (D), neutral (N), agree (A) to strongly agree (SA). Three items were multiple-choice options and the last item was open-ended which aimed to explore participants’ opinions about their experience of using word clouds. The questionnaire had five parts, the first part collected demographic experience and information about word cloud creation

through multiple choice options, the second collected general feedback on word clouds, the third inquired about reading skill, the fourth inquired about writing skill, and the fifth one about the impact on EFL learning.

*Sample Characteristics*

The initial part of the questionnaire collected relevant demographic details about their age, province and degree program. The majority of the students (55.4%) were between 21-30 years of age, 27 % from 18-20 years and 9% from 30-40 years. The majority of the participants (69.7%) belonged to the province of Punjab, Pakistan. Sixty six percent of the participants were enrolled in four year Bachelor of Science degree programs and the rest in two year Associate degree programs.

**Results**

The first part of the questionnaire asked 3 multiple-choice questions. The first question asked about the tools they used for creating word clouds. They were given 5 options: Wordle, Tagul, Tagxedo, Tagcrowd, and any other. A total of 49.9% used Tagul, 34% Wordle, 2.4% Tagxedo, 2.8% Tagcrowd and the rest others mostly wordclouds.com and word cloud generator sites. The second question asked about the time they took in creating word clouds and 33% took 5 minutes, 29.2% 10 minutes, 12.9% 15 minutes, 10.6% 20 minutes and the rest mentioned others. The next question probed whether they worked alone, in pairs or in groups and according to their responses 88.8% worked alone, 4.1 % in pairs and 5.6% in groups.

The second section of the questionnaire collected general feedback on the use of word clouds. Table 1 shows the results of the items included in this part.

SN	Item description	SD%	D%	N%	A%	SA%	Mean	SD
1	I was familiar with the concept of word clouds earlier	38.9	14.3	20	10.6	16.2	2.46	1.48
2	It was easy for me to create a word cloud.	7.2	10.6	18.1	21.5	42.6	3.61	1.38
3	I was provided clear guidelines to create a word cloud	9.1	12.1	17.4	22.3	39	3.48	1.38
4	I was familiar about the effectiveness of using word clouds in learning English language	22.1	16.4	27.9	15.6	17.9	2.76	1.34
5	It was an enjoyable experience to create word clouds for English language learning activities	4.2	5.4	9.6	24.1	56.7	3.97	1.26
6	I'd like word cloud based questions in my future assignments	8.2	7.9	21.7	22.8	39.3	3.42	1.37

Table 1: General feedback on word cloud-based activities

Section 2 had 6 items and overall the participants had a positive response to the use of word clouds. The most positive response was to the item "It was an enjoyable experience to create word clouds for English language learning activities" (56.7 % SA and 24.1 % A). The least positive response was to the item "I was familiar with the concept of word clouds earlier (38.9% SA and 14.3% D).

The third section of the questionnaire inquired about the improvement of EFL reading skills through the use of word clouds. Table 2 shows the results of the items included in this part.

	Word clouds	SD%	D%	N%	A%	SA%	Mean	SD
7	helped me in improving reading skills	10	10	33	25.7	21.5	3.15	1.19
8	helped me in skimming	7.7	10.1	19.8	31.2	31.2	3.18	1.26
9	helped me understand the main idea of the text	5.8	7.4	14.8	32.9	39.1	3.82	1.16
10	helped me in scanning (locating specific information)	6.8	8	23.6	30.8	30.8	3.43	1.19
11	helped me in inferencing	9.3	8.9	27.8	31	23	3.21	1.25
12	helped me in summarizing a text	4	8.8	18	35.6	33.6	3.66	1.17

Table 2: Word clouds for improving reading skills

The third part of the questionnaire explored participants' feedback on the impact of word clouds on improving reading skills and the responses were very positive. The most agreed item on the question was [they] "helped me understand the main idea of the text" (SA 39.1%, A32.9%). The least agreed item on the questionnaire was [they] "helped me in improving reading skill" (SD 10%, D10% & N33%). 47% strongly/agreed to this item.

Section 4 of the questionnaire collected opinions about the improvement of writing skills through the use of word clouds. Table 3 presents the results of the items included in this part.

	Word clouds	SD%	D%	N%	A%	SA%	Mean	SD
13	helped me in improving my writing skill (by making you focus on words and be able to use them in your writing)	12.5	10.2	27.7	29.7	19.9	3.08	1.24
14	helped me visualize concepts (the words larger or smaller help visualize concepts)	7.9	5.2	25	30.2	31.7	3.34	1.29
15	created relevant words which were there in my mind	8.4	11.6	28.5	29.3	22.1	3.22	1.24
16	helped me in improving vocabulary (learning new words or registering old words and their meaning)	11.4	13	25.2	28	22.4	3.27	1.25
17	helped me in writing essay outline	5.1	9.5	22.1	31.2	32	3.66	1.27
18	helped me in picking an appropriate title for the text	3.2	8.8	18.7	32.7	36.7	3.77	1.08
19	Word clouds helped me in essay writing	9.7	10.1	28.6	27.4	24.2	3.46	1.28
20	Helped as a memory refresher	6	7.2	21.2	34.8	30.8	3.47	1.15
21	helped me improve my creative writing skills	8.1	10.9	23	26.6	31.5	3.42	1.32
22	helped in improving my motivation for writing assignments	6.7	7.5	25.6	27.2	33.1	3.46	1.29

Table 3: Word clouds for improving writing skills

The fourth part of the questionnaire examined participants' opinions about the impact of word clouds on improving their writing skills. The most positive response item was [they] "helped me in picking an appropriate title for the text" (SA 36.7 %, A% 32.7). The least positive response item was [they] "helped me in improving my writing skill" (SD 12.5%, D 10.2%, N 27.7%). 49.6 % strongly/agreed to this item.

Section 5 of the questionnaire inquired about the overall improvement of the participants' EFL proficiency through the use of word clouds. Table 4 presents the results of the items included in this part.

SN	Item description	SD%	D%	N%	A%	SA%	Mean	SD
23	Word clouds helped me in becoming a proactive learner of English as a second language	7.2	14.1	26.9	36.1	15.7	3.21	1.11
24	Visual effects better facilitate English language learning	2.8	9.9	21	30.2	36.1	3.70	1.16
25	Word clouds helped me in developing a sense of the importance of group work	18.1	18.5	23.8	21	18.5	2.99	1.34
26	Word clouds helped me develop a sense of autonomy	8.7	10.3	20.6	32	28.5	3.26	1.29
27	Word clouds helped me in developing critical and reflective skills	7.6	12.4	23.2	31.2	25.6	3.25	1.24

Table 4. Word clouds for overall improvement

Part 5 of the questionnaire explored participants' opinions about the participants' overall language proficiency improvement based on word cloud activities and there were mixed responses. The most positive response item was "Visual effects better facilitate English language learning" (SA 36.1%, A 30.2%) followed by "Word clouds helped me develop a sense of autonomy" (SA 28.5%, A 32%). Closely followed the item "Word clouds helped me in developing critical and reflective skills" (SA 25.6%, A 31.2%). The least positive response item was "Word clouds helped me in developing a sense of the importance of group work" (SD 18.5%, D 18.5%, N 23.8%). Only 39.5 % agreed with this item. "Word clouds helped me in becoming a proactive learner of English as a second language" got a mixed response with 51.8 % strongly/agreeing to it.

The last question sought participants' comments about using word clouds as an educational technology tool and the response was overall very positive. The comments are summarized below:

- Unfamiliarity with word clouds caused anxiety particularly due to the asynchronous mode, however, this decreased after receiving instructors' responses/guidelines through emails and discussion threads.
- It took time to familiarize myself with the tool in my personal learning environment, but once learned how to use it, it was an enjoyable and innovative experience.
- It was a fun activity that reduced boredom through visual aesthetics, so more use of these type of activities in future assignments would be appreciated.
- Word clouds are mainly good for small-scale activities because they can distract attention from the main text.

Following are the results of the students in the word cloud based on the three activities respectively:

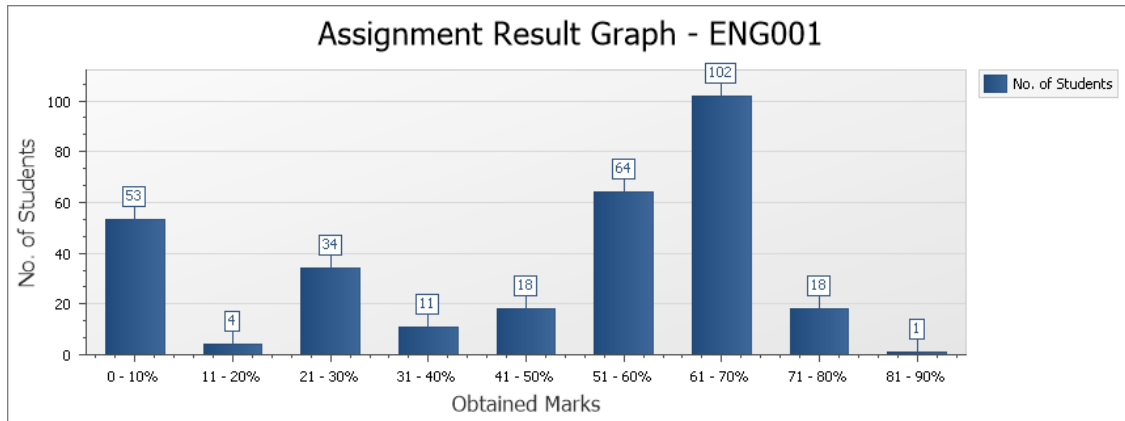


Fig 2: Assignment result-Eng 001

Figure 2 reflects that 64 students scored 51-60%, 102 61-70% and 18 71-80%.

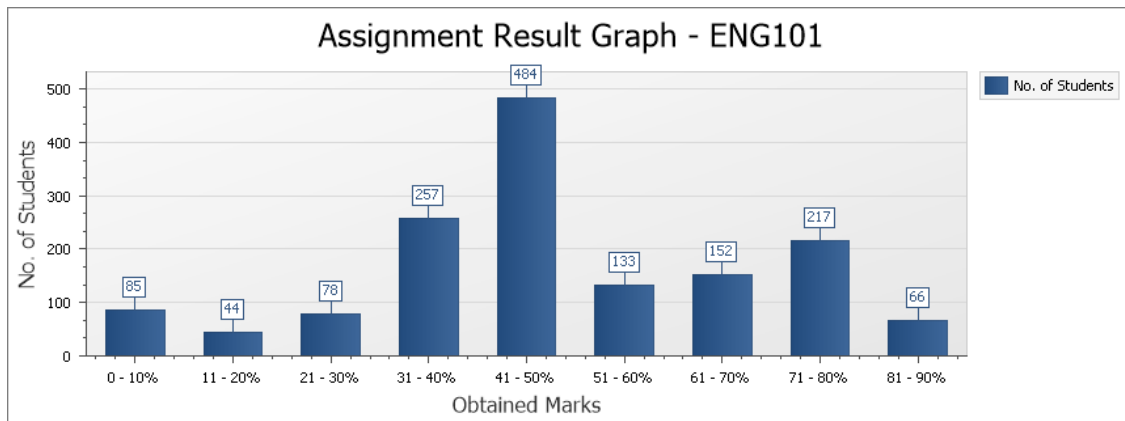


Fig 3: Assignment 1 result - Eng 101

Figure 3 reflects that 257 students scored 31-40%, 484 41-50%, 133 51-60%, 152 61-70% and 217 71-80%.

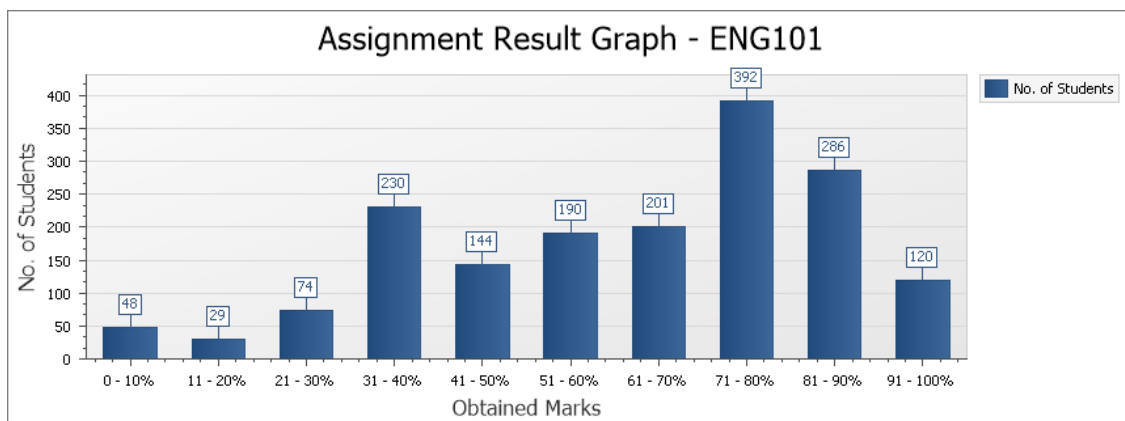


Fig 4. Assignment 2 Result-Eng 101

Figure 4 reflects that 230 students scored 31-40%, 144 41-50%, 190 51-60%, 201 61-70% , 392 71-80%, 286 81-90% and 120 91-100%.

**Discussion**

The study aimed at exploring the use of word clouds as a facilitating educational tool in an asynchronous online mode of EFL teaching-learning in Pakistan. The first research question explored students’ perception about using word clouds for assessment activities. It was an interesting finding that in spite of being



undergraduate students of an online-based instructional university, most of the students were not familiar with the concept of word clouds (38% SD) in general and of utilizing them in an EFL classroom in particular (30% neutral, 17% D and 22% SD). This implied that in Pakistani EFL classrooms, educational technology tools are not frequently used especially in asynchronous online classrooms. Therefore, the study establishes the significance of introducing such tools to the students. However, after receiving clear guidance (39% SA, 22% A), the participants found it quite easy to create word clouds (43% SA, 22% A) and found it an enjoyable instructional practice (57% SA, 24% A) that was not very time consuming (i.e., the time used to create them was 33%, 30%, 13%, 11% took 5, 10, 15 and 20 minutes respectively). The most popular or easy to use word cloud application among the participants were Tagul and Wordle (i.e., 50% used Tagul and 34% used Wordle). Overall, the participants who participated in the three types of word clouds activities for both formative and summative assessment were positive about word cloud-based activities as they found them a pleasant learning experience (60% agreement) and expressed their willingness to participate in more word cloud-based assessment activities (40% SA, 23% A).

The second research question examined the effectiveness of word clouds for improving reading skills. While students had a mixed opinion about the overall improvement in their reading skills (22% SA, 26% A, 33% N and 10% D, 10% SD), they were more positive the impact they had on improving their ability in skimming (31.2% SA, 31.2% A) and scanning (30.8% SA, 30.8% A), but felt that they were not very certain about the impact they have on their ability at inferencing (23% SA, 31% A). However, they were quite positive about the impact it has on their basic reading skills in understanding the main idea (39.1% SA, 32.9% A) and summarizing a text (33.6% SA, 35.6% A). Overall, the results reflected that word clouds are tools that can be best utilized for small-scale activities, but the results regarding their impact on improving a particular skill focus can only be achieved by using a process approach through making them practice with sequential activities throughout the semester. Previous studies like that of Jumpakate (2020) in the Thai context present the results finding that word clouds mainly were useful for learning vocabulary, offering an overview of a text, identifying a text's main idea and pre-reading activities. Similarly, Filatova (2016) finds word clouds were useful for pre-reading discussion, predicting the main idea, using vocabulary, identifying synonyms and summarizing the text. This study's findings confirm the effectiveness of word clouds for developing particular EFL skills, but is limited to the areas related to the three task-based assessment activities and does not indicate word clouds abilities in developing other EFL skills.

The third research question inquired about the usefulness of word clouds for writing skills. Like with reading skills responses, the same sort of mixed results were reported for the development of their writing skills. Students were not sure about the overall improvement of their writing skills (19.9% SA, 29.7% A, 27.7% N, 10.2% D, 12.5% SD) or their impact on their overall essay writing ability (24.2% SA, 27.4% A). They were more positive about the utility of word clouds in outlining an essay (32% SA, 31.2% A), selecting appropriate words for the essay (36.7% SA, 32.7% A) and as a memory refresher (30.8% SA, 34.8% A). More than 60% found word clouds motivating as part of a writing activity. Filatova (2016) also states that for developing writing skills, word clouds assist students with learning collocations, vocabulary synonyms-antonyms and identify the main points of a text. Kitchen (2014) used word clouds to assess students' free writing in the beginning and at the end of the semester. Word clouds helped students to plan their writing structure and scaffold the process. Mehrdad et al. (2016) conducted an experimental study exploring the effect of word clouds on writing discursive essays through collaborative practice and reported positive results. This study also finds word clouds helpful with respect to the process approach of essay writing by using them for free writing, outlines and enhancing vocabulary.

The last research question explored the impact of word clouds on EFL learning in an asynchronous mode of learning. The participants were quite positive about the impact of visual effects on EFL activities (36.1% SA, 30.2% A). They had mixed opinions about the overall impact of word clouds on making them proactive learners of EFL (15.7% SA, 36.1% A), developing learner autonomy (28.5% SA, 32% A), and valuing the importance of group work (28.5% SA, 32% A). A similar response was found regarding word cloud impact on developing critical thinking and reflective skills (25.2% SA, 31.2% A). De Noyelles and Reyes-Foster (2015) explored whether using word clouds in online discussions assists in developing critical thinking and engagement, and they reported moderately higher levels of critical thinking and engagement with their use and recommended them for stimulating critical thinking and engagement in all educational environments. Similarly, Reyes-Foster & de Noyelles (2016) explored the impact of word clouds on the critical thinking of the students, by engaging them in analyzing two speeches one in the form of linear text and other in the form of word clouds. The latter provided better evidence of critical thinking. This study also found that using

educational technology tools like word clouds provides a format for students to work independently on or in groups while developing critical thinking skills.

The students' task-based assessment results reflect an overall positive performance regarding the scores obtained as part of the word cloud activities. However, as in assessment activity in English 001 course, the majority of students scored between 50-70% on the assignment, while the students in performance on the task-based assessment activity in the English 101 course, the two groups of students scored between 31-50% and 71-80%, respectively. In the second assignment of the English 101 course, the results significantly improved because the students were at that point familiar with creating word clouds. Thus, the results reflect the benefit of using word clouds in asynchronous e-language learning more frequently and sequentially over a semester to offer a better impact of students' language development. Xie and Lin (2016) examined the use of word clouds as a scaffolding strategy in the process of knowledge integration and reported positive results. This study also concludes that word clouds are a good strategy for scaffolding EFL reading and writing skills.

### Limitations of the Study

The study examined task-based assessment activities over one semester only in a Pakistani university context. The task-based assessment was selected due to the primary role of asynchronous language instruction at the online university. Despite the study's limitations it is informative to the researcher as it was an action research and intended to inform the author's instructional practice based on what was learned. The results can also be informative to EFL teachers who instruct in higher education through asynchronous course delivery.

### Conclusion

Word clouds are an effective educational technology tool that can be best utilized for pre-reading and pre-writing activities or for improving vocabulary and spellings, based on this study's findings. The effectiveness of their use is relative based on how they are incorporated into various activities and for how much time they constitute as part of course instruction.. In an asynchronous e-language learning environment, they can be of great assistance in using a constructive approach to make learning student-centered through enhancing peer-learning in personal learning environments and task-based language learning. Word clouds can make the second language learning process less stressful by providing enjoyable multimodality in which students can develop a sense of ownership for their artwork and language comprehension and production, attaining autonomy in the language learning process. Therefore, word clouds are a potential effective learning tool because they can enhance motivation and engagement through the flexibility of use and design acting as a useful adjunct to other learning strategies (Miley & Read, 2011). However, to best utilize them for improving integrated skills, a sequential instructional design is required to create more familiarity with their use and purpose through multiple scaffolding activities. Instructors in asynchronous e-language learning contexts need to be reflective when incorporating word clouds into their instructional design. The study recommends the use of word clouds after providing explicit guidelines and using them for class activities that involve formative assessment only. More studies are required to explore the impact of word clouds on (a) improving listening and speaking skills in a/synchronous e-language learning, (b) learning styles of students in a/synchronous personal learning environments and (c) TBLT with an asynchronous mode of instruction. Also, experimental studies on asynchronous e-language learning are required to evaluate performance before and after the use of word clouds.

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