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Evaluating The Effectiveness of Logical Reasoning Integration on The Academic Writing of Pakistani Undergraduate ESL Learners

¹Syed Hamza Imam, ²Amnah Moghees

Article Details

ABSTRACT

Keywords: Critical thinking, ESL students, logical reasoning, thematic analysis, writing skills.

Syed Hamza Imam

University of Eastern Finland, Joensuu-
Finland. syedhamzai@outlook.com

Amnah Moghees

University of Management and Technology,
Lahore- Pakistan. Amna.moghees@umt.edu.pk

The study aimed to investigate the impact of incorporating logical reasoning lessons on improving the writing proficiency of Pakistani undergraduate ESL learners. For this purpose, initially, a diagnostic test, comprised of expository writing questions was administered to the participants to evaluate their current level of writing proficiency. The sample of this study comprised 40 undergraduate ESL learners studying in their first semester at a private university in Lahore, Pakistan. The analysis of the writing samples was conducted by Clark & Braun's (2017) method of thematic analysis. The findings revealed that the participants had several deficiencies in their writing including oversimplified structures, vague statements, lack of coherence, unwarranted claims, illogical development of arguments, and repetitive ideas. These findings validated the poor writing proficiency of the participants attributed to their lack of logical reasoning abilities. After that, logical reasoning lessons were prepared and integrated into the classroom with the help of a language instructor over 12 weeks. Following the integration of those lessons, an evaluative assessment of the same nature was taken by the participants. The academic writing samples specifically expository writing in the evaluative assessments, analyzed by the same method, demonstrated significant enhancement in the writing skills of the participants. The improvement in the writing was noted through the themes including detailed structures, clear statements, well-supported claims, varied ideas, and high coherence. These findings substantiate the hypothesis of the study that the integration of logical reasoning in classroom instructions enhances the writing skills of Pakistani undergraduate ESL learners.

INTRODUCTION

As per Dowden (2012), logical reasoning is just another name for critical thinking skills. He argues that “high-quality reasoning is called logical reasoning or critical thinking” (Dowden, 2012, p. 1). Thus, reasoning logically can be seen as thinking critically. Logical reasoning includes organized integration of logic to examine and analyze arguments. Halpern (2014) contends that different definitions of critical thinking in the existing studies use the term “logical reasoning” (p. 8). Therefore, it is evident that logical reasoning is itself critical thinking when it is combined with some other cognitive skills.

Logical reasoning finds its significance in the education sector (Mason & Washington, 1992). At the undergraduate level, logical reasoning becomes imperative for the students to evaluate their thinking in different tasks. The learners can use these skills to improve their academic performance (Masduqi, 2011). Therefore, the critical thinking skills help the university students in academic achievement. In the context of ESL, starting learning English language from an early age is crucial for success in life as the demand for the English language in academic and professional fields is increasing day by day (Nishanthi, 2018). Due to this reason, language instructors are acknowledging the importance of the development of language skills of students, along with logical reasoning skills. ESL learners must possess both language fluency and logical reasoning skills if they want to gain success in their academic and professional lives. For that reason, many universities are now concerned about the development of logical reasoning skills (Baik & Greig, 2009).

The teaching of critical thinking or logical reasoning skills in ESL classrooms is of great importance for many reasons (Rafi, 2011). As per Liaw (2007), critical thinking is primarily responsible for the improvement in the language proficiency of ESL learners. Language students can become efficient language users if they are effectively taught logical reasoning skills. All language skills are enhanced by logical reasoning; however, educators believe that writing skills and logical reasoning skills are highly correlated because the skill of writing is an embodiment of thinking. Thus, it can be said that writing and logical reasoning are very closely related skills. But in reality, it is unfortunate that the language teachers are mostly interested in teaching traditional skills, neglecting the importance of logical reasoning (Ruano, 2021). That is why most of the learners are dull in the use of the target language. In most cases, teachers are not trained enough to teach logical reasoning (Tam & Linh, 2017). Therefore, the current study is based on learning and teaching of logical reasoning skills in

Pakistani ESL context. The study aims at identifying the role of fostering logical reasoning skills in the improvement of writing skills of ESL learners.

SIGNIFICANCE OF THE STUDY

The current study finds its significance in the field of TESOL (Teaching English to Speakers of Other Languages), especially in the context of Pakistani ESL context. As far as theoretical insights are concerned, this research enlightens the important relationship between logical reasoning and English writing skills of Pakistani undergraduate ESL learners. On the other hand, the current study finds its practical implication in the field of curriculum development. The findings of the study advocate for a transition in the current curriculum of ESL learning in Pakistan and urge to integrate logical reasoning into the curriculum.

RESEARCH QUESTIONS

The present study addresses the following research questions:

- What are the key challenges faced by Pakistani undergraduate ESL learners in academic writing?
- How does explicit logical reasoning lessons enhance the academic writing performance of Pakistani undergraduate ESL learners?

LITERATURE REVIEW

Bloom (1956) developed a hierarchical design for the process of development of critical thinking, called Bloom's taxonomy. According to Bloom (1956), there are six levels of learning and they are in a certain hierarchy. The first three levels i.e., knowledge, comprehension, and application are considered 'lower-order' thinking skills, whereas the next three levels i.e., analysis, synthesis, and evaluation are considered 'higher-order' thinking skills. 'Knowledge' refers to the memorization of information, 'comprehension' refers to understanding information, 'application' refers to the utilization of information, 'analysis' refers to the breakdown of complex information into smaller parts, 'synthesis' refers to the development of new information, and the highest level 'evaluation' includes giving judgments, critiques, recommendations, justifications, etc.

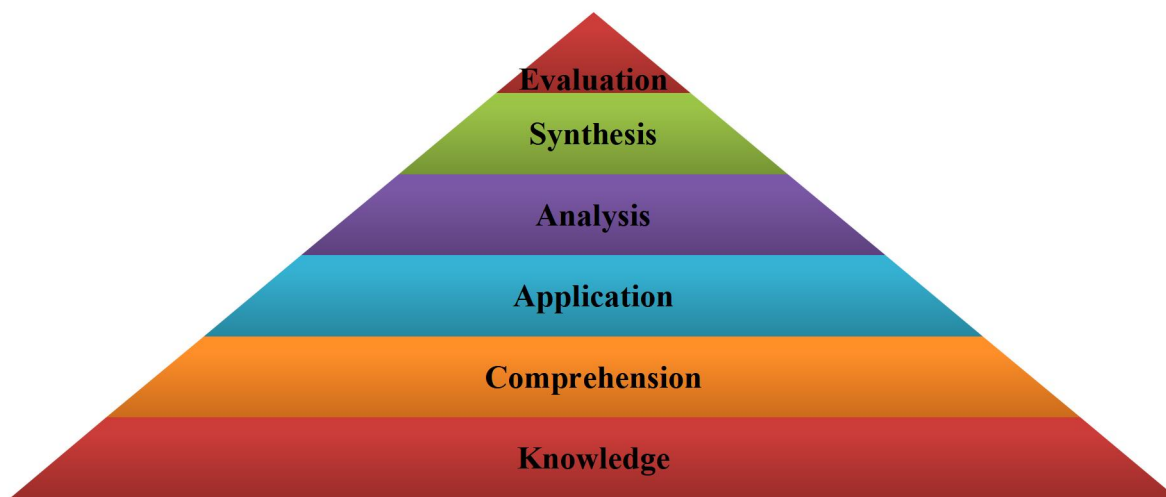


FIGURE 1 *BLOOM'S TAXONOMY (1956)*

In education, critical thinking or logical reasoning has significant importance. It has been identified that critical thinking skills are among the major constructs that are responsible for good academic performance by students (Giancarlo & Facione, 2001). According to Shukri and Mukundan (2015), critical thinking facilitates learners to make self-regulatory, evaluate arguments, draw reasonable solutions, and settle daily life disputes. The significance of critical thinking in education skills is also emphasized by Fisher (2003) who argues that critical thinking skills must be taught by teachers along with the daily lessons. According to him, the usual thinking skills of the students are not adequate to tackle the problems they face either in their academic or professional lives. Thus, the teachers must incorporate logical reasoning in their lessons which will help the students in learning new concepts. In ESL classes, specific aspects of critical thinking are present. Also, many universities have shown concerns about the critical thinking skills of ESL learners and have already designed special courses that help ESL learners develop required critical thinking skills (Baik & Greig, 2009).

Several past studies have substantiated the importance of logical reasoning in enhancing the language skills of second-language learners. Shirkhani and Fahim (2011) describe three significant justifications for the integration of critical thinking skills in EFL and ESL classrooms. Firstly, students can take charge of their thinking through logical reasoning. Secondly, the incoming linguistic information becomes more meaningful and purposeful for the language learners through reasoning. Thirdly, the achievements of the learners in the learning process are directly related to their thinking abilities. As per Ur (1996), critical thinking is significant for ESL or EFL learners as it enables the learners to communicate in the English

language effectively. Critical thinking facilitates autonomous learning. Thereby, language teachers are highly encouraged to integrate reasoning skills in the language classrooms at an early stage. In this way, they will be able to achieve considerable and timely success (Qing, 2013). The high correlation between critical thinking ability and higher language proficiency levels is also examined by Rosyati and Rosna (2008). They conducted a study on Malaysian university students. They determined the thinking skills of undergraduate students and compared them with their English language skills by using the Cornell Critical Thinking Test (CCTT) Level X. Through this test, they were able to conclude that there was a strong correlation between the English language skills and the critical thinking skills. In this way, it can also be concluded that if the students have good reasoning skills, their English language skills will also be strengthened.

Writing is also considered a modified form of reasoning where a combination of different skills is present and also serves as a problem-solving technique (Abbott & Berninger, 1993). It has been proven in the past that there is a strong correlation between the writing skills and thinking skills of ESL learners. The writing skills of the learners are influenced by their level of logical reasoning. Kabilan (2007) argued that to become a proficient language learner, a learner needs thinking skills as without using these skills, students cannot write effectively. Another study conducted by Fahim and Hashtroodi (2012) concluded that the connection between the writing skills and critical thinking skills of EFL learners was significant. In the words of Weigle (2002), writing and critical thinking are seen as “closely linked, and ability in writing is seen as an indication that students have mastered the cognitive skills required for university work” (p. 5).

Some studies have confirmed that the writing activities that require the students to construct their ideas organize them, and think thoughtfully are the best in this regard (Goatly, 2000). Rahmat et al. (2020) found the relationship between academic writing and the thinking skills of ESL students. They explored the phenomenon of how reasoning skills were reflected in the writings of ESL students. The same idea is discussed by Pramonojati et al. (2019) who said that writing efficiently needs proficient thinking skills. They conducted a study on introductions written by students and also interviewed them. They concluded that high thinking skills are necessary for students to develop a background in research.

There are certain tasks and activities that can be used by language instructors to foster logical reasoning skills in ESL learners. One such activity is debates and discussions. The significance

of debates and discussions in promoting thinking skills is emphasized by Akerman and Neale (2011). They contend that when students are encouraged to take part in debates by presenting two different viewpoints on an issue, they attain a chance to showcase their reasoning skills. Another valuable and thought-provoking activity that promoted thinking skills was posing questions. One thing that is necessary to keep in mind while utilizing this strategy is that not all kinds of questioning are helpful in this regard. Another strategy for promoting critical thinking skills in ESL or EFL classrooms is written assignments. The teacher can give meaningful assignments to the students which involve some valid reason to write and then compare with other students' tasks. In this way, students can analyze the thoughts of other students and also support their peers.

It has been argued that the development of critical thinking skills in language students is not satisfactory. Berr (2016) conducted a survey in which he found out that almost 60% of the newly graduated students did not have adequate thinking skills. This inadequate development of reasoning is even more evident among students in Asian countries. It was found by Rashid and Hashim (2008) that many of the newly graduated Malaysian students were not able to fulfill the demands of their employers as they lacked the necessary critical thinking skills. Similarly, in the educational context of Indonesia, the development of critical thinking skills is not satisfactory at both primary and secondary levels (Sadli, 2002). Other studies disclosed that the trend of poor thinking skills is also seen among Thai students. Rujivanarom (2016) conducted a study to check the thinking and analytical skills of students in Thailand. His study revealed that only 2% of the participants were able to cross the passing mark. The same trend of poor thinking and reasoning skills was also seen in Taiwan (Harklau, 1994). In the light of these studies, it is evident that the learners in Asian countries perform poorly in thinking skills. Although there have been several researches in the past that link the writing skills of Asian ESL students with their thinking skills, there is no study that directly talks about the effects of integrating logical reasoning skills on the writing skills of Pakistani undergraduate ESL learners. Therefore, the current study is an attempt to explore the existing problems in the expository writing of Pakistani ESL learners due to poor logical reasoning skills and the effects of integrating logical reasoning skills in the enhancement of Pakistani ESL students' writing skills.

In this context, Bloom's (1956) taxonomy has proven to be very effective in evaluating the writing skills of learners at different cognitive levels according to Bloom's taxonomy. Bloom's

taxonomy can also assist English language teachers in fostering the logical reasoning skills of their students by giving them a framework that can be utilized by them for developing effective learning activities. Therefore, the current research study analyzes the errors in expository writing of Pakistani undergraduate ESL learners and organizes them according to various thinking levels as defined by Bloom (1956). Later, it also finds out the impact of integrating logical reasoning lessons on the writing skills of Pakistani undergraduate ESL learners.

RESEARCH METHODOLOGY

The current study adopts a qualitative and descriptive approach. Qualitative research might include a comparison of two or more cases. The current study also conducts a descriptive case study to explore how the writing skills of the participants are enhanced through the integration of logical reasoning lessons.

The current research is conducted in three different phases. In the first phase, a sample of expository writing (diagnostic test) was evaluated to determine the current writing proficiency of ESL learners. In the second phase, some logical reasoning lessons were prepared and implemented in the classroom with the help of language instructors. In the third phase, another expository writing sample (evaluative assessment) of the participants was evaluated to check the results of implementing those lessons. The population was comprised of 40 undergraduate ESL learners at the start of their first semester at a private university in Lahore, Pakistan. Those participants provided the data for the study at the start as well as the end of their first semester.

In the current study, the data was collected in form of a writing sample. The students were asked to answer an expository question between 200 and 250 words at the start of their first semester as well as at the end of the first semester. The logical reasoning lessons were comprised of 10 sessions that were developed and implemented in the classrooms by the help of language instructors over 12 weeks.

The study employed a deductive approach to analyze the data. The errors in the writing samples due to poor logical reasoning were evaluated in diagnostic test by Clarke and Braun (2017) method of thematic analysis. The evaluative assessment of the learners was also analyzed by the similar method to determine the effects of the implementation of logical reasoning lessons on the writing skills of ESL learners. Although the study was qualitative, a quantitative comparison of the frequencies of learners' mistakes and improvements in both writing samples was conducted to provide deeper insights about the phenomenon.

FINDINGS, AND DISCUSSION**THE CHALLENGES ESL LEARNERS FACE IN EXPOSITORY WRITING**

The first section includes six different themes that emerged in the data: unwarranted claims, oversimplified structures, illogical development of the arguments, vague statements, repetitive ideas, and lack of coherence. The nature of these errors reveals a deeper issue: the students' struggles with logical reasoning. The correlation between these writing mistakes and the lack of logical reasoning suggests that poor reasoning skills are a significant contributing factor to their overall writing challenges.

UNWARRANTED CLAIMS

The first error found in the data, unwarranted claims, is related to the 'evaluation' level of Bloom's taxonomy. In expository writing, claims, supporting evidence, judgments, assessments of claims, and connecting the arguments with propositions are very important. When a writer makes an unwarranted claim, he/she just attempts to convince the readers to believe him/her or act upon his command. Thus, an unwarranted claim is a claim which lacks evidence-based argumentation and backing of the claim with facts (Newell et al., 2011). Some recent studies related to writing proficiency of students indicated that the development of informed judgments is very rare in young students (Perie et al., 2005). Rafi and Moghees (2023) also found out through their study that unwarranted claims are very much prevalent in Pakistani writers which questions their argumentative skills.

According to Table 4.1, several instances of unwarranted claims were present in the responses of the participants. PAR1 claims that “the most valuable asset in our lives is time”, however, he does not give any evidence to support his claim. This unwarranted claim shows poor logical reasoning skills, as logic always demands particular evidence for any kind of claim.

TABLE 1: UNWARRANTED CLAIMS IN ACADEMIC WRITING

Textual Illustrations	Theme
“The most valuable asset in our lives is time” (PAR1); “A disciplined man is far more successful than a motivated man” (PAR30); “Your life is dependent upon time management” (PAR2); “You have a good character, so you become a good student” (PAR3)	Unwarranted claims

OVERSIMPLIFIED STRUCTURE

The second error found in the data, oversimplified structures, is related to the 'synthesis' level of Bloom's taxonomy. As the writing samples were written by the participants who were

undergraduate ESL students in the first semester, it was foreseen that the sentence structures and the discourse used by the participants in the writing samples were oversimplified. Oversimplification of structures is one of the most frequently occurring problems seen in basic and beginning writing. As per Bartholomae (1979), “basic writers, because they equate thought with order, often look for the means of reducing a subject to its simplest or most obvious terms” (p. 95). Hence, the current data shows several instances of oversimplified structures used by the participants.

One such example of oversimplified structure is that of PAR8 who writes “From the age of 11, I started getting up before Fajar”. Such a statement confuses the reader on why he woke up early for the prayer or what the importance of getting up early in this regard. This statement is termed as oversimplified because it does not contain the context of the matter.

TABLE 2: *OVERSIMPLIFIED STRUCTURES IN ACADEMIC WRITING*

Textual Illustrations	Theme
“From the age of 11, I started getting up before Fajar” (PAR8);	Oversimplified structures
“From last three years, I have been working out at gym” (PAR1);	
“Which time wake up. Which time play games. Which time study” (PAR4);	
“This event was dreamt by me when I once failed” (PAR15);	
“It was totally a new stage of my life” (PAR16); “After that I started talking with him. And he started sharing his issues with me” (PAR42)	

ILLOGICAL DEVELOPMENT OF ARGUMENT

The next error found in the *academic* writing of the selected participants, the illogical development of arguments, belongs to the 'analysis' level of Bloom's taxonomy. The illogical development of arguments lacks logical reasoning as it hinders the cohesion and coherence of the text and inhibits the effectiveness of the intended message. According to Dwyer et al. (2010), developing an obvious and coherent argument that is supported through facts and evidence is an essential aspect of logical reasoning. Therefore, when the development of arguments in a text is not logical, the writer fails to specify a direct link between different ideas.

An illogical development of argument is made by PAR17 in the statement “This was the period when you come close to each other very fast and the very stronger attraction, but the time was short.” This statement presents an ambiguous concept about a period that is characterized by immediate closeness and fascination towards other individuals.

TABLE 3: ILLOGICAL DEVELOPMENT OF ARGUMENTS IN ACADEMIC WRITING

Textual Illustrations	Themes
“We spend most of our valuable asset as a newbie of new introduced game” (PAR1); “By saying this, time will never give you importance, I meant success” (PAR5); “Time is very important for a successful life because time is very important for students” (PAR6); “This was the time period when you come close to each other very fast and the very stronger attraction, but the time was short” (PAR17)	Illogical development of the argument

VAGUE STATEMENTS

Another error found during the analysis of the *academic* writing of the students in the diagnostic test, the use of vague statements, is related to the 'application' level of Bloom's taxonomy. Several instances of statements were found in the responses of the participants that exhibit vagueness, which in turn demonstrates poor logical reasoning skills. It is usually assumed that using vague language, either in written or spoken discourse, is a negative aspect (Junker et al., 2005).

One such instance of vague statement in the data is the statement of PAR13 “Moreover, when I was about to clean the blood of my mother from the ground” is not clear. The reader cannot understand the exact meaning of such an expression by reading it.

TABLE 4: VAGUE STATEMENTS IN ACADEMIC WRITING

Textual Illustrations	Themes
“Everything you do in your life is important only when you do it on time” (PAR7); “I just waste time and do not follow the process in discipline” (PAR4); “If we want to solve our success...” (PAR8); “Moreover, when I was about to clean the blood of my mother from the ground” (PAR13); “It was a day that gave me motivation to achieve the world” (PAR15)	Vague statements

REPETITIVE IDEAS

The sixth theme found in the data that demonstrates poor writing skills is the utilization of repetitive ideas by the writers in their expository writing samples. This error of repeating the same idea again and again in the same writing can be attributed to the 'synthesis' level of Bloom's Taxonomy. Such repetition of the same ideas can indicate an absence of thoughtfulness

and analytical thinking among the writers. In such a case, a writer relies on the restatement of the same idea repetitively instead of exploring a new angle (Diamond, 2012).

The phrases "my parents were proud" and "make my parents proud" used by PAR13 in the same paragraph of the expository writing is a use of a repetitive idea with slight rephrasing. The first statement shows the feeling of parental pride on the part of the parents themselves; however, the second statement shows the action performed by the writer to make his parents proud. These statements can be considered redundant because the intended meaning in both of the statements is identical

TABLE 5: REPETITIVE IDEAS IN ACADEMIC WRITING

Textual Illustrations	Themes
"To be successful, we must know the importance of time" & "a disciplined man is far more successful" (PAR1); "my parents were proud" and "make my parents proud" (PAR13); "it was a new and interesting part of my life" and "It was totally a new stage of my life" (PAR14); "people were separating" and "separation of friends" (PAR15)	Repetitive ideas

LACK OF COHERENCE

The last category of errors that was found in the diagnostic test of Pakistani undergraduate ESL learners was lack of coherence that reflects that the participants are weak at the 'analysis' level of Bloom's taxonomy. The quality of writing depends up to a significant level on the element of coherence. Dong (1999) argued that poor discourse and lack of coherence are reasons for poor English writing skills. Diliduzgun (2013) argues that students can enhance their written text by using the tools of coherence. Several instances of statements demonstrating a lack of coherence were found in the data. The statement made by PAR 2 "Without these, a person cannot become successful. Your life, your routine is conditional." Starts with a broad contention but does not explain what "these" means in the statement which creates ambiguity. Also, the sharp change to the next sentence lacks coherence.

TABLE 6: LACK OF COHERENCE IN ACADEMIC WRITING

Textual Illustrations	Themes
"Without these, person cannot become successful. Your life, your routine is dependent...." (PAR2); "So you become a good student and archive a goal and become a successful person" (PAR6); "Suddenly in the	Lack of coherence

middle of nowhere a car hit me not sure where it came from" (PAR38);
 "After that I was so disheartened applied in my nearest institute and got
 admission" (PAR39); "Set the time to leave which was morning 5.30 To
 leave for picnic and hunting" (PAR28)

THE IMPROVEMENTS MADE BY ESL LEARNERS IN ACADEMIC WRITING

This second section details the results of the evaluative assessment, showcasing the instances of improved *academic* writing in the ESL students' writing samples. The analysis of this section shows the emergence of six themes including logical development of arguments, well-supported claims, detailed structure, clear statements, varied ideas, and high coherence.

LOGICAL DEVELOPMENT OF ARGUMENTS

The first theme that indicates enhanced writing skills as the result of integrating logical reasoning is the logical development of arguments. If we consider an extract of PAR1, "It's like a little family party every time. One of the coolest things we do is watch Ertugrul, a Turkish drama that we all love", the argument is logically developed as it starts by mentioning an analogy of gathering of family members and make a way for the coming argument. Similarly, in the response to PAR9, "I am close to my mother since we exchange laughs and recollections at midnight", the writer supports the primary claim with evidence. First, he mentions that she is close to her mother, then he gives evidence of this claim.

TABLE 7: LOGICAL DEVELOPMENT OF ARGUMENTS IN EVALUATIVE ASSESSMENT

Textual Illustrations	Theme
"It's like a little family party every time. One of the coolest things we do is watch Ertugrul, a Turkish drama that we all love" (PAR1); "Learning new things is like finding magical secrets. You can ask mom and dad to show you cool stuff or teach you something new" (PAR2); "I'm really close to my mother since we exchange laughs and recollections at midnight" (PAR9); "These shared experiences allow us to connect on a personal level, fostering open communication and understanding" (PAR15)	Logical Development of Arguments

WELL-SUPPORTED CLAIMS

The second theme that demonstrates improvement in the writing skills of participants in the

evaluative data is well-supported claims. Claims are very important for writing, no matter whether it is an expository one or an argumentative one. It helps the writer in putting forward a framework for writing (Yang, 2022).

Such a claim was made by PAR1 who wrote "Even though we might not be together every day, these moments make up for it". This articulation of PAR1 consists of a claim that says that the moments that are spent together with the family members fill the deficiency of not being together regularly. Although it is a very subjective contention, it is well corroborated by the essence of the time that family members spend with one another makeup for the lack of frequency.

TABLE 8: WELL-SUPPORTED CLAIMS IN EVALUATIVE ASSESSMENT

Textual Illustrations	Theme
"Even though we might not be together every day, these moments make up for it" (PAR1); "The most admiring, cozy, and worth it moment is to spend time with your parents, making a strong bond and connection with them" (PAR4); "Spending time with my parents is a treasure to be treasured" (PAR5); "My parents are the most important people in my life" (PAR7)	Well-Supported Claims

DETAILED STRUCTURE

The next theme found in the data is 'detailed structures'. The use of detailed structures in writing is a symbol of high logical reasoning skills as it demands the learners to organize their thoughts and ideas logically. Shaughnessy (1977) defines an experienced writer as one who "characteristically reveals a much greater tolerance for an attitude of suspended conclusion, than the inexperienced writer" (p. 227).

One such detailed structure is developed by PAR12 who wrote "One of our favorite adventures is visiting Nana's village which is like stepping into a magical land filled with stories and laughter". He demonstrates detailed structure by describing a particular adventure. Not only do the participant talks about his visit to the village of his grandfather, but he also furnishes his response by adding sensory details.

TABLE 9: DETAILED STRUCTURE IN EVALUATIVE ASSESSMENT

Textual Illustrations	Theme
"First you can make yummy food. You can pick a fun movie or	Detailed Structures

show to watch with them” (PAR2); “My father is a social person who interacts with our neighbors too” (PAR8); “I used to do a lot of shopping with mama and I’m a little bit stubborn in some cases” (PAR9); “One of our favorite adventures is visiting nana’s village. It’s like stepping into a magical land filled with stories and laughter” (PAR12)

CLEAR STATEMENTS

The next theme that indicates the improved writing skills of the learners through the integration of logical reasoning skills is the use of clear and concise statements. Rackevičienė (2011) argues that good writing must have the attributes of clarity, accuracy, and objectivity.

An example of a clear and concise statement in the data is that of PAR3 who said "Spending quality time with your parents is a wonderful way to strengthen your bond and create lasting memories". This statement has clarity as it demonstrates a straightforward and clear idea of spending quality time with family members, which in turn is responsible for the creation of long-lasting memories and the strength of bonds among them. The directness of this expression makes it clear and concise.

TABLE 10: CLEAR STATEMENTS IN EVALUATIVE ASSESSMENT

Textual Illustrations	Theme
“Spending quality time with your parents is a wonderful way to strengthen your bond and create lasting memories” (PAR3); “Parents are a multitudinous blessing” (PAR4); “It’s like a warm hug that makes everything feel just right” (PAR9); “We love to celebrate special occasions as a family, whether it’s birthdays or festivals, with delicious food and joyful festivities” (PAR10); “There are many ways to spend time with parents” (PAR11)	Clear Statements

VARIED IDEAS

Using varied ideas in academic writing demonstrates a thorough understanding of the subject. As per Apridayani et al. (2024), effective writing includes a broad range of perspectives and ideas to develop comprehensive and detailed writing.

In the writing sample of PAR33 “strengthen your bond... create lasting memories... share all my ups and downs... boost my morale... connection with them”, several varied ideas are

portrayed by the participant. First, he talks about the strengthening of relationships with time, then he talks about the creation of ever-lasting memories with parents. Furthermore, he also mentions how he shares all the ups and downs of his life with his family. The participant has incorporated all these varied ideas in a single writing that demonstrates his improved writing skills.

TABLE 11: *VARIED IDEAS IN EVALUATIVE ASSESSMENT*

Textual illustrations	Theme
“enjoyed his company... stubborn in some cases... a good daughter of my parents... love to have talks” (PAR6); “mini celebration with my parents... stepping into a magical land... our own little farm adventure... chase butterflies.... Sit around the table... snuggling up with mama” (PAR9); “sitting alone on a couch... during my up-bringing... massaging their aching limbs... smile over my goofy yet lame jokes... with my lovely joy-bringers” (PAR10); “strengthen your bond... create lasting memories... share all my ups and downs... boost my morale... connection with them” (PAR33)	Varied Ideas

HIGH COHERENCE

Coherence is a crucial element of writing mastery (Mukhroji, 2020; Noori, 2020). Coherence is a very important and crucial aspect of evaluating the writing quality of a writer.

The excerpt of the writing sample of PAR27 "After that, when my father comes home, I make tea for him and we all sit together and talk to one another" demonstrates high coherence through various important aspects that facilitate the logical flow of ideas. The phrase “after that” used by the learner demonstrates an ordered sequence of events, thus making an organized timeline. This assists readers in understanding the flow of ideas in a logical progression.

TABLE 12: *HIGH COHERENCE IN EVALUATIVE ASSESSMENT*

Textual Illustrations	Theme
“You can do lots of cool things together. First you can make yummy food” (PAR2); “Because of our link, I can appreciate their love and support” (PAR4); “Moreover, we conscientiously partake in mutual interests and pastimes that afford shared enjoyment” (PAR17); “Also, at evening we sit together and have some tea” (PAR25); “Furthermore,	High Coherence

I love to spend time with my parents” (PAR34); “After that, when my father comes home, I make tea for him and we all sit together and talk to one another” (PAR27)

CONCLUSION

The current study aimed at enhancing the writing skills of undergraduate ESL learners in Pakistan through the integration of logical reasoning skills in daily lessons. For this purpose, a diagnostic test that consisted of academic writing samples was taken from the participants to check the current level of the writing proficiency of the learners. The writing samples of the participants in the diagnostic test were analyzed by Clark & Braun (2017) method of thematic analysis. The analysis identified several recurring problems in the academic writing samples of the participants including unwarranted claims, oversimplified structures, illogical argument development, vague statements, a lack of coherence, and repetitive ideas. These themes underscored that ESL learners possessed deficient writing proficiency, which can be attributed to their poor logical reasoning abilities. After that, logical reasoning lessons were integrated into the curriculum with the help of ESL instructors. Following the integration of logical reasoning lessons, an evaluative assessment of the same nature was administered to the participants. The analysis of the evaluative assessments showed a significant improvement in the writing skills of the participants. The emergent themes generated by the thematic analysis included the logical development of arguments, well-supported claims, detailed structures, clear statements, high coherence, and varied ideas. The findings of the current study present persuasive evidence that integrating logical reasoning lessons into the daily curriculum can markedly enhance the writing skills of undergraduate ESL learners in Pakistan. This enhancement of the writing skills of the participants corroborates the existing literature that highlights the significance of logical reasoning abilities in the development of higher proficiency in writing skills.

RECOMMENDATIONS FOR FUTURE STUDIES

- Future studies should conduct a longitudinal study to find out the long-term effects of incorporating logical reasoning lessons in ESL classrooms.
- Future studies can also be conducted by expanding the educational context across different cities.
- Future studies could be conducted with a larger sample size that will help validate the

generalizability of the findings.

- Future studies can be conducted on different genres of writing, not only expository writing.
- Future researchers are encouraged to adopt a mixed-methods approach by incorporating quantitative measures, such as paired sample t-tests, to statistically compare pre-test and post-test scores.

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