

Assessing the Relevance of Phonemic Awareness Activities in Foreign Language Teaching and Learning

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Abstract

Phonemic awareness (PA) has been used primarily used to investigate children early reading comprehension and pronunciation skills and later on extended to second and foreign language vis-à-vis learners reading comprehension and pronunciation enhancement. Similarly, the current study uses PA activities based on J.F Lee and B. VanPatten (2003) structured input activities model as an effective way to raise learners' awareness of the English phonemes exposed to them in order to attend to them by efficiently identifying, representing, and manipulating them. The participants involved in this study are first year students from the Department of Anglophone studies who speak Moore as first language, French as intermediate language, and English as foreign language. Having difficulties identifying, representing, and manipulating English phonemes, this study aims at helping them via structured PA activities. Using the Mann Whitney Wilcoxon Test as a statistical treatment, the findings of this study prove the effectiveness of PA activities since the group that benefited from the intervention outperformed the control group that received no treatment with a P-value less than 0.05 as $0.0001 < 0.05$. In this logic the median of the PA group is higher than the control group: $14.5 > 10$ though it was approximatively the same before the treatment. Also, the Likert's scales approach which is further used to correlate students' reactions to the results of the experiment proves that almost all students appreciate the PA activities as relevant and beneficial. Therefore, structured PA activities should be recommended in foreign language teaching when phonology is involved (244 words).

Key words: Phonemic awareness; Likert's scales; processing instruction; phonemes.

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1. Introduction

The field of second language acquisition and foreign language learning has been an area of investigation for centuries. Many researchers and language teachers have been struggling to identify appropriate and effective teaching methods in foreign language learning and teaching. Starting from traditional teaching methods by extension audiolingualism where the instructor is the authoritative body and learners- receptive vessels, to the traditional approach of contrastive analysis where similarities and differences of languages are compared in order to focus more on differences since differences are believed to be areas of difficulties. Audiolingualism and contrastive analysis teaching model have been demonstrated to be irrelevant in second or foreign language learning. The current trend is processing instruction teaching model derived from the work of [1] that is believed to be effective in second and foreign language teaching as supported by many studies in [2,3,4]. Yet, processing instruction teaching model which is based on structured input activities is limited to grammatical aspects since the structured input activities of PI teaching model are referred to as meaning based activities. Being framed as such, phonetics and phonology which involves phonemes and speech sounds are discarded. Hence, in phonetics and phonology the commonly used teaching approach is called phonemic awareness activities. Phonemic awareness activities were primarily carried on children to investigate its effectiveness and relation to children early reading comprehension and pronunciation skills. Other studies in [5,6,7] later on, have extended PA to foreign and second language learners as a way to push these learners to better attend to the phonemes of their L2 that could pave the way for an effective reading comprehension and pronunciation. Many phonemic awareness activities focus mainly on blending, segmentation, identification, and discrimination of phonemes in [8,9,10,11,12]. Yet, the current study slightly differs from former studies conducted in phonemic awareness activities. First, the current study involves university level students, first year students, from the Anglophone studies. This supposes that learners already have a basic level in English into reading and understanding basic texts in English. Hence, the phonemic awareness activities of the current study do not seek to enhance learners' reading comprehension skills though it may happen. What the current study plans to do is to help Moore EFL students better identify, represent, and manipulate the phonemes of their foreign language. This done so, because students have difficulties identifying and representing the phonemes of their foreign language, here English. Worse, most students confuse phonemes and graphemes. Therefore, the current study frames its structured phonemic awareness activities slightly different from former studies conducted on PA but slightly similar to [13] structured input activities model. This is done so for the current study aims at pushing learners to effectively processing the English phonemes exposed to them in order to attend to them. By doing so, this study also aims at assessing the relevance of the new structured phonemic awareness activities in second and foreign language learning using Mann Whitney Wilcoxon testing procedure as well as the Likert scales approach to measure students' reaction vis-a-vis the structured PA activities. Common structured input activities according to [13] include the following:

- Supplying Information
- Surveys
- Matching
- Binary Options (True/False, Logical/Illogical, Normal/Strange, etc.)
- Ordering/Ranking).

Framed slightly according to [13] structured input activities model, the phonemic awareness activities of the current study include the following:

- Reading to identify phonemes
- Listening to identify phonemes
- Filling in the blank with missing phonemes to convey meaning
- Matching
- Representing phonemes

To better assess the effectiveness of the PA activities, the following research questions are formulated:

- Why are phonemic awareness activities believed to be beneficial in foreign language teaching?
- How can phonemic awareness activities help learners better learn the phonemes of English?

Following these research questions, we hypothesized that:

- Phonemic awareness activities are believed to be beneficial in foreign language teaching
- Phonemic awareness activities can help learners better learn the phonemes of their foreign language, English.

The objective of the current study that flows from the research questions and hypotheses is to assess the effectiveness and efficiency of PA in foreign language learning. Following the introduction, the current study includes a literature review, methodology, results, discussion, and conclusion.

2. Literature review

2.1. Phonemic awareness

2.1.1. Historical background

Learning how to read is a complex task that involves many stages. Phonemic awareness is one of them. It is defined as “the ability to explicitly manipulate speech segments at the phoneme level” In [9: 429]. Also [8] refers to it as learners’ ability to understand smallest units of speech sounds. In [12] stress that phonological awareness is “the ability to analyze and manipulate units of sound in speech” (p. 372). Phonemic awareness also called phonological awareness by [13] define it as the “awareness and access to the phonology of one’s language,” or, simply the “awareness of the sound structure of language” (p. 192). Following that approach, phonemic awareness has been extensively defined by [14] as follows:

Phonological awareness is defined as the ability to conceive of spoken words as sequences of sound segments which correspond to the written units and access and manipulate those segments in words...It is a kind of metalinguistic ability that

requires the explicit knowledge of different sizes of phonological segments of spoken words...as well as the conscious ability to notice, think about, and to manipulate...those phonological units (p. 30-31).

Phonemic awareness has been primarily used in the field of first language acquisition to assess children speech development and its relation to their reading comprehension and production skills. Many linguists and language teachers have proven the relevance of phonemic awareness to enhance children early speech development as well as enhance their reading comprehension skills in [8,9,5,6,10,9] for instance, investigates the role that phonemic awareness plays in children language development, including different methods of instructions in phonemic awareness. The author's study proves that phonemic awareness contribute to reading accomplishment as supported by previous studies in [15]; I. Lundberg and his colleagues in [16] ; In [17,18,19]). PA skills develop during the pre-school years and during the beginning stages of learning to read in [8]. For him, children in Grades RR, R and 1 should understand that words are constructed by blending phonemes together, for example, 'cat' is formed by blending /k/, /æ/ and /t/. Simultaneously, the word 'cat' can be segmented into /k/, /æ/ and /t/. Learners should also be able to recognize that a difference in meaning occurs when the /k/ in 'cat' is replaced with /m/ and a new word, 'mat', is formed. This is further supported by [20] as they argue that phonological awareness is a critical precursor, correlate, and predictor of reading achievement. This is the evidence of the importance of phonological awareness interventions comes from phonological awareness studies of 5-to-6-year-old children that boosted later reading achievement. However, other studies depict that PA does not improve children reading comprehension skills in [21], S. Nag-arulmani and his colleagues in [22], R. Zapporilli and I. R. Su in [23], J. Bae and I. Fox in [24]). S. Nag-arulmani and his colleagues in [22], for instance, show that children who received PA instruction did not improve in PA and word reading. Also, they confirm that there was no difference in reading comprehension as compared to children who did not receive PA instruction. Similarly, In [25] question the necessity of PA in second language literacy development since some studies have shown that PA is not necessary in first language acquisition (L. Ehri and his colleagues in [26: 276]. This is further supported by some longitudinal studies that prove that although children have not been exposed to PA, most of them do well on PA test just about grade 3. For them PA develops on its own in first language not to talk about second language acquisition. Following correlating PA first language acquisition, PA has been extended to second language acquisition. Many studies demonstrate the importance of PA in the acquisition of second or foreign language items. In [7] investigates the role of explicit phonetic instruction for Japanese speaking ESL students on the acquisition of some English-specific segmentals: /æ/, /f/, /v/, /θ/, /ð/, /w/, /l/, /ô/. In other words, this article assesses the impact of explicit phonetic instruction on the pronunciation of some English segmentals, as above mentioned, using two different measurements, including "accentedness and comprehensibility" (p.45). the findings reveal that explicit phonetic instruction can improve learners' comprehensibility at *sentence-reading* level and *picture-description* level (p.54) although there is no significant difference in the sentence-reading task for both experimental and control group. In addition, In [27] aim at exploring the relationship between Iranian EFL learners' explicit phonological awareness, their foreign *accentedness* and speech *comprehensibility* as perceived by native and non-native English speaking EFL teachers. The results of the study indicate that there is a significant correlation between learners' phonological

awareness and perception of foreign *accentedness* and the same for phonological awareness and speech comprehensibility. Therefore, foreign accents can affect foreign language understanding. Hence, pedagogical activities are required to minimize *accentedness* for a better understanding of foreign languages. Next, In [28] supports that pronunciation instruction has been shown to improve learners' L2 accent in some, though certainly not all, cases. This study reports on the pronunciation gains that first, second, and third year learners (n = 95) made after receiving either explicit instruction in Spanish phonetics or a more implicit treatment with similar input, practice, and feedback. The findings of this study prove that explicit lessons did not facilitate the improvement in pronunciation. It is rather the input, practice and or feedback included in the pronunciation instruction. In [29] examines whether explicit instruction in phonetics and the phonologies of English and Arabic improved the sound production and recognition skills of adult native speakers of English learning Arabic as a foreign language. The results of this study show that the treatment is beneficial to students in the experimental group, who received instruction on phonetics and the phonologies of English and Arabic. Significant differences in term of performance were found between the control group and experimental group, with the students in the experimental group scoring higher. It is obvious via these studies that PA is beneficial in second language acquisition (SLA). However, some studies have proven that PA is not beneficial in SLA). For [25], the lack of PA effectiveness in L1 is also extended to second languages (L2) as supported by some studies H. Chu and his colleagues in [30]); R. Zapporilli., and I.R. Su in [23], M. DelliCarpini in [21]. For them PA in English as a second language also develops with no instruction. Their studies have proven that people who received explicit PA and those did not, made gains on a PA test with no significant difference. In order to verify the necessity of PA in SLA, the authors investigate series of researches that dealt with the topic. These researches include in [21], S. Nag-Arulmani and his colleagues in [22,23,24,21] involves 26 adult Spanish speakers. The study has revealed that over a course of a year, these adult learners with "little formal education in ESL [English as second language]" did well in PA even though they have not received explicit PA instruction. S. Nag-Arulmani and his colleagues in [22] show that although children who received PA instruction did improve in PA and word reading, there was no difference in reading comprehension as compared to children who did not receive PA instruction. The following aspect to address is how PA is used in our research

2.1.2. The implication of PA in the current study

The concept phonemic awareness is multidimensional. There is no single definition attached to it in [8]. This is obvious as expressed earlier. Yet, all the definitions have some aspects in common since they refer to PA as the manipulation, understanding, insight about, and mastery of units of sounds in speech. Thus, PA can be simply defined as the manipulation and understanding of speech sounds at the phoneme level. It is also believed that PA can be taught successfully via explicit PA activities, including interaction with print written text while paying to the structure of sounds in spoken words in [8]. This is supported by I. Lundberg and his colleagues in [17] for whom PA can be efficiently taught under a variety of teaching conditions. Other studies use other types of explicit PA activities in their research, including phoneme segmentation, blending, identification, and discrimination A.E. Cunningham in [9,7], M. Le Roux and his colleagues in [31]. The current study also assumes that PA can be taught effectively and efficiently based on well-structured PA activities. The current study supports well-structured PA activities are crucial in helping learners better acquire the phonemes of their target language. The current study, unlike in [8,9,5,6,10], S. Nag-Arulmani and his colleagues in [22,23,24] who

primarily use PA in first language acquisition setting, extends PA to foreign language acquisition setting like H. Chu and his colleagues in [30], Reference [23,21,29,7,28,27]. The latter use explicit phonemic awareness instruction, including phonemes' segmentation, discrimination, and blending to help learners better manipulate the speech sound of their target language. Yet, the current study uses PA with a different approach made of structured phonemic awareness activities slightly based on the structured input activities model of [11]. Our goal is to apply processing instruction (PI) teaching model to phonology but since phonemes are believed not to have meaning on their own, we frame the phonemic awareness activities according PI model to elicit teach English phonemes to Mooré first language (L1) speakers. We assume that the way we structured our activities are relevant since they are going to push learners to attend to linguistic features exposed to them, the English phonemes.

Activity 1: Listening to identify phonemes

Here, learners hear the instructor read a passage. They write the passage down in their exam sheet, where the instructor already provided them with a number of phonemes. The task here is to ask students to identify and represent the given phonemes in the text they wrote.

Activity 2: Reading to identify phonemes

Students are given a text, in which some letters of the English alphabet are underlined. The assignment here is to have students provide the phonemic representation of the underlined letters.

Activity 3: Matching

Matching 1

In this activity, students are given a passage where letters are underlined. In addition, they are given many phonemes (some of which are not represented in the passage) to match with the underlined alphabet letters. This is done so to push learners to better choose and process the correct phoneme.

Activity 4: Filling in the blank

Here, learners are asked to fill the blank with the phonemes provided to them to convey meaningful words. This activity aims at pushing learners to derive meaning at two levels, phoneme level, and word level.

Activity 5: transcription

Turning a transcription into a text

Students are asked to turn a transcribed passage into a normal text. The purpose of this activity is to push learners to move from the knowledge of individual phonemes into the knowledge of combined phonemes in sentences and texts by extension. We assume that since learners have been pushed to attend to the phonemes of their target language, they could derive meaning from combined phonemes as well for the purpose of structured

input activities is not to only have learners master the phonemes but to also use them communicatively (in speech, in text...)

Transcribing basic words in English

Learners have been introduced to English in high school and they are currently taking their first semester courses at the university level at the Department of Anglophone Studies. It is obvious that they have been introduced to some basic English words. At this level, we want them to transcribe the words by using the phonemes exposed to them. As stated earlier, the current study based its structured phonemic awareness activities on Lee and VanPatten processing instruction model. But what is processing instruction (PI)? Though PI not the main focus of the current study, it is worth discussing it since it is partly involved in the present work.

Processing instruction

Processing instruction (PI), which is generally defined as the way learners process or manipulate the input exposed to them, has been viewed as an effective teaching method in second language acquisition. It has been recently used in the field of foreign and second language learning. B. VanPatten develops and discusses the underlying principles of this teaching theory. Processing instruction originates from the work of [1], which aims at providing an appropriate teaching method in foreign language teaching. In [11] further demonstrate the necessity of PI in second and foreign language teaching while presenting the limit of traditional teaching which is based on mechanical drills, memorization of dialogues and practice of sentence patterns. For them, drills are not beneficial in second language acquisition, since learners do not necessarily acquire the linguistic data exposed to them. The limit of traditional teaching, called audiolingualism (ALM) or “Atlas complex” as presented by [11] is that the ALM instructor did not usually provide “the opportunity for the students to use the language in a meaningful or communicative way, one involving the exchange of messages” (p.11). A new approach to language teaching, called processing instruction, became necessary. This new teaching method is concerned with *input processing*, how “learners initially perceive and process linguistic data in the language they hear” (p. 137). Input processing is a psycholinguistic strategy whereby learners derive intake from input, with input being referred to as the linguistic data exposed to learners, and intake, as the linguistic data from the input that the learner assimilates and keeps in his/her memory. For the authors, processing instruction should be based on structured input, an “input that is manipulated in particular ways to push learners to become dependent on form and structure to get meaning” (p. 142). Processing instruction is made of three basic components:

- Learners are given information about a linguistic structure or form.
- Learners are informed about a particular processing strategy that may negatively affect their picking up of the form or structure during comprehension.
- Learners are pushed to process the form or structure during activities with *structured input* in [11], p.142).

They insist that the structured input activities should not only be meaningful to learners but also communicative. A learning task will only be considered communicative if new information is exchanged. The primary focus

becomes authentic language use and the development of communicative skills rather than the practice of grammatical structures. Types of structured input activities include the following :

- Supplying Information
- Surveys
- Matching
- Binary Options (True/False, Logical/Illogical, Normal/Strange, etc.)
- Ordering/Ranking in [11]

There are two types of structured input activities called referential and affective activities. Referential activities are those which answer are necessarily right or wrong and require learners to refer to the target language. As stated in [11], p.159, referential activities are those, “for which there is a right or wrong answer for which the learners must rely on the grammatical form to get meaning”. Affective activities, on the other hand are those activities in which learners express their points of views.

2.1.3. The implication of PI in the current study

PI is not the main focus of the current study except that the current study frame its structured phonemic awareness activities slightly according to PI model as above mentioned.

3. Methodology

3.1. Overview of the study design

The current study seeks to assess the effectiveness and efficiency of structured phonemic awareness activities in second and foreign language teaching and learning. To do so, this study uses two assessment methods. The first consists of an experiment based on a pretest and posttest. The second uses Likert’s scales evaluation method to measure students’ reactions vis-à-vis the structured phonemic awareness activities. Two groups are considered in this study, including a control group and a treatment group. Both groups will take part to the pretest and posttest. Yet, the control group will receive no treatment.

3.2. Population/Sample

This study involves first-year students of the Department of Anglophone studies who speak Moore as first language (L1), French as intermediate language (L_{ini}) and English as foreign language (FL) based on the 2018-2019 academic year. 44 students volunteered to take part in the study and are put into two groups where each group comprises 22 participants.

3.3. Sampling techniques

The Sampling is the technique used to select the number of individuals for a study so that the individuals represent the larger group from which they were selected (C.M. Roberts in [32]). The common sampling

techniques include probability sampling and non-probability sampling. The former is also called random sampling since it involves random selection whereas the latter does not in [33]. Saying so, the current study uses non-probability sampling since the participants are relatively small and have been selected have been selected on the basis of volunteering (that is convenience sampling)

3.4. Procedures

As stated earlier, 44 participants are involved in this study. Thus, two groups are formed, a control group and a treatment group with 22 participants by group. All the two groups are administered a pretest. Following the pretest, the control group (called group B) received no intervention whereas the treatment group (group A) received a treatments, phonemic awareness activities. After the treatment, all two groups are administered a posttest, then, the pretest and posttest grades are collected, graded and analyzed using the Mann Whitney U Test. In addition to the Mann Whitney U Test participants of the treatment group provide their appreciation according to Likert’s scales approach at 5 point scales, including: Extremely helpful, very helpful, somewhat helpful, not so helpful, not at all helpful. The total credit hour for the lecture is 12 hours in addition to the 6 hours for the pretest and posttest, hence a total of 18 hours. This study has been completed in two-week time thanks to participants’ motivation.

3.5. Materials

The teaching material consists of a handout which contains the structured phonemic awareness (PA) activities and students’ reaction table. The structured phonemic awareness activities are made of matching activities, filling in the blank, reading and listening to identify phonemes, matching, filling in the blank, recording voices, and producing phonemes. The phonemic awareness activities can be found on appendix A. The Likert’s scales 5 point involved in this study is represented below:

Table 1: Students’ reaction scales

	Extremely helpful	Very helpful	Somewhat helpful	Not so helpful	Not at all helpful
Reading for phonemes					
Listening for phonemes					
Producing phonemes					
Matching exercises					
Filling in the Blank exercises					

3.6. Statistical treatments

Inferential statistics is used in this study since it makes prediction and tests the hypotheses about the data in

[34]. In our research, inferential statistics are used to measure the validity of the research hypotheses in order to draw conclusions. To better assess the research hypotheses, non-parametric tests are used since the population is not normally distributed. Among the non-parametric tests, the Mann Whitney U Test, also called Wilcoxon Rank Sum Test or the Mann Whitney Wilcoxon Test fits the current study. This test is used for nonparametric sampling when comparing two independent samples that the outcome is not normally distributed and where the sample size is relatively small (>30). The Mann Whitney U Test fits the current study's data analysis since the non-probability sampling techniques, namely, the convenience sample is used. The Mann Whitney U Test helps to measure the median values and performances of the two groups from pretest to posttest as well as the difference in the distribution of the scores (D.E. Hinkle and his colleagues in [35]). In other words, this test compares the median of the two samples as compared to parametric test that compares the mean between independent samples. In the Mann Whitney Wilcoxon Test two hypotheses, including the null hypothesis (H_0) and the alternative hypothesis (H_1) are distinguished as follows:

H_0 : The two populations are equal

H_1 : The two populations are not equal

In the current study, the Mann Whitney U Test concerns both group A (control group) and B (treatment group) with respect to the pretest and posttest. The null hypothesis for the Mann Whitney U Test is that there is “*no difference in the distribution of scores of the K populations*”, whereas the alternative hypothesis states that the K populations or the combination of populations differ with a level of significance set a priori at .05 (D.E. Hinkle and his colleagues in [35], p.577). Following the Mann Whitney U Test the Likert's scales are used to measure students' reaction to the structured phonemic awareness activities. This is done so, to correlate the results of the experiment with students' appreciation of the PA activities.

4. Results

4.1. Experiment

Upon administrating the pretest and posttest, the tests are collected, graded, and reported as shown below. Table 2 consists of the pretest and posttest grades of group A (which is the treatment group) and group B (which is the control group).

Table 2: Students' pretest grades (group A and B)

Group B	Pretest/20	Group A	Pretest/20
B1	12	A1	08
B2	10	A2	07
B3	05	A3	04
B4	03	A4	10
B5	10	A5	06
B6	12	A6	12
B7	11	A7	05
B8	12	A8	02
B9	10	A9	04
B10	06	A10	11
B11	13	A11	13
B12	11	A12	06
B 13	08	A 13	06
B14	08	A14	11
B15	05	A15	08
B16	06	A16	03
B17	03	A17	07
B18	03	A18	08
B19	05	A19	05
B20	08	A20	02
B21	09	A21	09
B22	09	A22	04
Median	8.5	Median	6.5

Table 3: Students' posttest grades (group A and B)

Group B	Posttest/20	Group A	Posttest/20
B1	16	A1	11
B2	14	A2	07
B3	10	A3	08
B4	19	A4	12
B5	16	A5	06
B6	17	A6	12
B7	17	A7	06
B8	17	A8	04
B9	15	A9	07
B10	16	A10	11
B11	17	A11	15
B12	15	A12	-
B 13	12	A 13	10
B14	13	A14	11
B15	11	A15	-
B16	14	A16	-
B17	12	A17	-
B18	12	A18	-
B19	11	A19	-
B20	13	A20	02
B21	-	A21	-
B22	-	A22	10
Median	14.5	Median	10

Right from the pretest and posttest grades, as stated above, the median of Group A and B before the treatment is 6.5 and 8.5, respectively. Yet, after the treatment, the median of the treatment group is 14.5 as compared to the control group, which is 10. The statistical differences of the two medians are tested.

Estimations of the results via stata

Table 4: Two-sample Wilcoxon rank-sum (Mann-Whitney) test

Groups	Obs	Rank sum	expected
B	22	550,5	495
A	22	439,5	495
Total	44	990	990

unadjusted variance	1815
adjustment for ties	-16,12
adjusted variance	1798,88

Ho: Test1(Groupe==B) = Test1(Groupe==A)

$$z = 1.309$$

$$\text{Prob} > |z| =$$

$$0.1907$$

It is apparent, from the pretest grades, that at the threshold of 5% the median of group A is not significantly different from the median of group B because the P- Value is 0.1907 that is 19.07% > 5%. Therefore, the null hypothesis (H₀) is not rejected. This simply means that group A and B have approximately the same level from the pretest and before the treatment or intervention. Let's compare the performance of the two groups after treatment.

Table 5: Two-sample Wilcoxon rank-sum (Mann-Whitney) test

Groups	Obs	Rank sum	Expected
B	20	583	360
A	15	147	270
Total	39	630	630

unadjusted variance	900
adjustment for ties	-8,32
adjusted variance	891,68

Ho: Test2(Groupe==B) = Test2(Groupe==A)

$$z = 4.119$$

$$\text{Prob} > |z| = 0.0000$$

At the threshold of 5% the median of group b is statistically significant and different that the median of group A since the P- Value is 0.00 which is less than 0.05 ($0.00 < 0.05$). Here, the null hypothesis is rejected because there is a statistically significant difference between the median of group B and group A after the treatment (the phonemic awareness activities). This means that the phonemic awareness (PA) activities are relevant in increasing learners' level. Therefore, PA should be recommended in second or foreign language teaching when phonology is involved for better results.

4.2. Students' reaction

As stated in the methodology, besides the experimental study, we further assessed learners' reaction to the teaching material using the Likert's scales approach. The current study involved 5point Likert's scales: extremely helpful, very helpful, helpful, not so helpful, and not at all helpful. The purpose of further assessing learners' reactions to the PA activities is to access the activities students enjoy the most and then to correlate them by extension to the results of the experiment. Below is the table representing the 5point Likert's scales of students' reaction

Table 4: Results of students' reactions

	Extremely helpful	Very helpful	Somewhat Helpful	Not so helpful	Not at all helpful	total
Reading for phonemes exercises	12	6	0	1	0	19
Listening for phonemes exercises	12	7	0	0	0	19
Producing phonemes exercises	8	7	2	2	0	19
Matching exercises	7	1	6	4	1	19
Filling in the Blank exercises	6	5	5	1	2	19

It is important to clarify that the EI + PA group only filled out this table. Out of the 22 who took part in the pretest, 20 pursued the posttest. Thus, 20 participants filled out the Likert's scales. 1 out of the 20 participants who filled the scales did not fill in properly leaving the remaining 19 students. As elaborated in the chart above, 12 students out of 19 found the reading to identify phonemes extremely helpful, 6 students found it very helpful, whereas 1 found it a bit helpful, and none (0) found it somewhat helpful, or not so helpful, or not at all helpful.

In the same vein, 12 and 7 students marked the listening to identify phonemes extremely helpful and very helpful, respectively. 8 students found the matching activity, extremely helpful, 7, very helpful, 2, somewhat helpful, and 2, not so helpful. For the phonemes' matching activity, 7, 1, 6, 4, and 1 students reacted, extremely helpful, very helpful, somewhat helpful, not so helpful, and not at all helpful respectively. In this respect, 7, 5, 5, 1, and 2 students responded extremely helpful, very help, somewhat helpful, not so helpful, and not at all helpful, respectively for the filling in the blank exercises. A histogram was used to represent the data as depicted below:

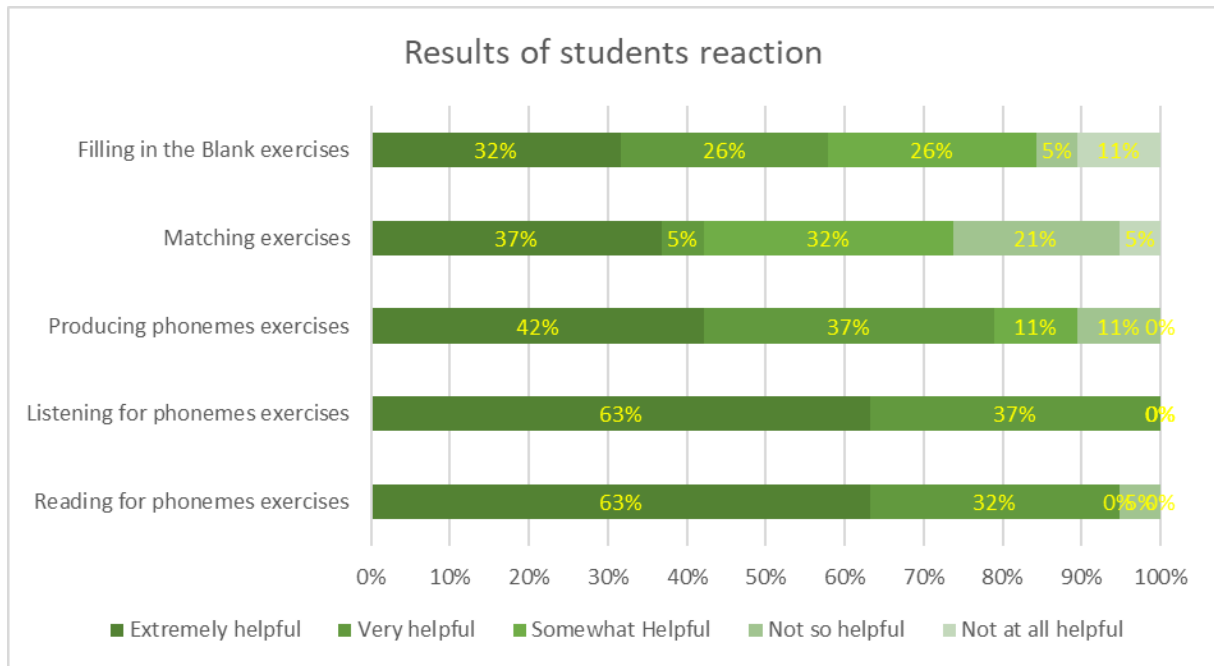


Figure 1: Histogram of students' reaction.

Based on this histogram, the current study can state that the phonemic awareness activities, in general, have been beneficial to learners, with regards to their appreciations of each activity. For instance, the majority responded favorably to the different activities.

5. Discussions

5.1. Experiment

The findings of the current study yield many answers vis-à-vis the research questions. To answer the first research question,

- Why are phonemic awareness activities believed to be beneficial in foreign language teaching?

The answer is that PA activities are believed to push learners to better notice and attend to the linguistic features exposed to them, the English phonemes in this case. This is supported by the results of the current study since the level of participant increased from pretest to posttest. The median increased from 8.5 (for the pretest) to 14.5

(for the posttest). In addition, the Mann Whitney U test reveals that there is statistically a significant difference between the control group and the treatment since the P-value, 0.0001 is less than 0.5 ($p < 0.5$). Therefore, the null hypothesis according to which there is no difference between the groups is rejected whereas the alternative one supported. There is a difference between the two groups in terms of performance. The phonemic awareness group outperformed the control group. This has been supported by former studies framed a bit similarly. In [8,9,10,5,6] have demonstrated the benefit of PA activities in second and foreign language learning in [9], for instance, reveals that the type of instruction given in phonemic awareness plays an important role since those who received phonemic awareness activities based on metalevel activities outperformed those who received skill and drill activities. Therefore, PA activities contributed to the reading achievement. This also supported by other studies Lundberg and his colleagues in [16], and Olofsson and Lundberg in [17]

To answer the second research question,

- How can phonemic awareness activities help learners better learn the phonemes of English?

It is apparent that the way phonemic awareness activities are designed help learners to better identify, represent, and manipulate the phonemes of English. Saying so, the current study structured its PA activities a bit similar to [11] structured input activities supported to be relevant and beneficial in second and foreign language learning. This is due to the fact that learners are pushed via well-structured input activities to derive meaning from form [1,36,37,38,4,3,39,40,1] demonstrate the benefit of processing instruction (PI) based on structured input activities over explicit instruction (EI) based traditional teaching (TI) since the PI group outperformed the TI group. Hence, the author suggests that processing instruction rather than EI is beneficial since it aims at pushing learners to attend to meaning by deriving meaning from form as supported by other studies in [4] as well as J.F. Lee and B. VanPatten teaching in [11]. Since our structured phonemic awareness activities are slightly framed according to [1] PI activities, it is apparent that the PA activities of the current study, in the same logic, pushed learners to better acquire the phonemes of the foreign language, English. In addition, the current study is supported by previous studies for which Phonemic awareness activities which consist of blending, segmentation, identification, and discrimination of phonemes are believed to push learners to effectively process the linguistic items exposed to them in order to attend to them in [8,9,10]. Following the research questions, the research findings support the research hypotheses, stated below:

- Phonemic awareness activities are believed to be beneficial in foreign language teaching
- Phonemic awareness activities can help learners better learn the phonemes of their foreign language, English.

Therefore, phonemic awareness is recommended in second and foreign language teaching and learning to enhance learners' performance for effective and efficient results. However, in this study, although the PA group outperformed the control group (CG), the latter also improved from pretest to posttest. This may be due to the fact that learners took introductory linguistics course prior this study. A similar study could be conducted were participants are not exposed to introductory linguistics courses prior the study. This constitutes a limit to the current study. Another limit is the sample size. A bigger sample size could have yield different results that

could be generalized. Also, a probability sampling would have been more appropriate since it gives equal chance members of the population to be selected. In other words, normal distribution would have been more relevant.

5.2. Students' reaction

Students' reaction results are also important to supporting the current study. Thus, after the statistical analysis of the experimental study and the students' reactions we correlated them to see if the results of the experimental research reflect on students' reaction to the teaching material. Mann Whitney U Test test shows the significant gains that structured PA activities group did from the pretest to the posttest. This significant gain proves that structured PA activities are beneficial in foreign language teaching in general, and phonetics and phonology in particular. As students' reaction to the PA activities are analyzed and represented in a histogram it is apparent that students enjoyed the activities with specific attention or attachment to the different structured phonemic awareness activities. For instance, 95% of participants found the reading to identify phonemes extremely helpful and very helpful (63% and 32%, respectively); 100% of participants found the listening to identify phonemes extremely helpful and very helpful (63% and 37%, respectively); 79% stated that the phonemes' production is extremely helpful and very helpful (42% and 37%, respectively). 59% reacted that filling in the blank activities extremely helpful and very helpful (32% and 27%, respectively), and finally, 42% the matching activities extremely helpful and very helpful (37% and 5%, respectively). Hence, almost all students favorably reacted to the phonemic awareness (PA) activities as a whole. For each activity, the participants went beyond 50 % except the matching activities where participants' reactions did not reach 50%. In addition, the feeling in the blank was just average. Therefore, these activities (the matching activities the feeling in the blank ones) might need to be reconsidered in future research. Students' reactions overall prove the benefit of PA activities in the acquisition of the phonemes of English as Foreign language. Therefore, PA activities should be used in foreign language teaching contexts.

6. Limitation of the study

The sample size is relatively small as compared to the population. A larger sample would be much more relevant. The current study divided the participants into two groups made of 22 participants per group. In addition, the sample could have been selected differently, namely the probability sampling, to yield generalizable results to the entire population since the results of the current study are generalizable to a restricted number of people that is, only 1st year students of the Department of Anglophone studies who speak Mooré as L1, French as L_{int} and English as FL. Another limit to the study is the number of absences observed during the posttest concerning group A. 7 absences over 22 (7/22) is relatively high and this could affect the posttest grades of the control group. Therefore, groups that keep the same number of participants for both pretest and posttest would be much more relevant and appropriate in similar studies.

8. Recommendations

The current study recommends the use of a laboratory for similar researches for better results because one thing

is to be able to identify the phonemes and another thing is to be able to listen to and produce the phonemes correctly. Although we had learners record their own voices to compare with the instructor's, a laboratory use would have made a difference. Another study on the suprasegmental features, including tone, stress and intonation, will also be beneficial to learners because the first step is to be able to identify, represent, and manipulate the phonemes of the English language for foreign or second language learners of English, and the other step is to be able to identify the stress patterns in words to be able to pronounce them correctly.

9. Conclusion

Phonemic awareness, the ability to hear and manipulate individual phonemes, has been used in the field of second and foreign language learning. It was primarily used in first and second language acquisition setting to enhance children language development and reading comprehension skills in [8,9,5,6,10]. It has been later on extended to adult learners to help them attend to the linguistic features exposed to them. These studies, above, further prove the effectiveness of PA on reading comprehension and phoneme production. In a similar way, the current study, use PA activities to help learners to better attend to the phonemes of their foreign language, English. Yet, the current study focuses mainly on phonemes' identification, representation, and manipulation. In addition, the current's framed its structured phonemic awareness slightly according to [11] teaching model. 44 students from the Department of Anglophone Studies at University Joseph KI-ZERBO are involved in this study. They are put in two groups, namely a control group and a treatment group (PA group). The statistical treatment via Mann Whitney Wilcoxon Test proves that the two groups had approximatively the same level based on the pretest analysis. Yet, after the treatment, there is a significant difference between the two groups. The treatment group outperformed the control group. This supports the hypothesis of the current according to which PA activities are beneficial in second and foreign language teaching and learning. The results of the experiment are further supported by the students' reaction based on Likert's scales approach, where almost all students reacted favorably to the PA activities. Therefore, PA activities should be recommended in second and foreign language learning and teaching, especially where phonology is involved.

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Appendix: Pretest and Posttest answer keys

I- Listening to identify phonemes (15pts)

- a. Write down the conversation as you hear it and then underline and represent 10 phonemes (one phoneme at a time) in **the first sentence** based on the phonemes given below (the instructor read the passage)

Phonemes: /dʒ/, /p/, / ə/, /ŋ/, /tʃ/ /m/, /k/ /i/, /ʃ/, /ð/, /θ/, /ε/, /ɪ/, /f/, /j/

Learning to speak a foreign language fluently and without an accent is not isn't easy.

/ε/, /ɪ/, /ŋ/ ,/p/, /k/ /f/ /dʒ/ /ð/- /θ/, /ə/, /i/

In most educational systems, students spend many years studying grammatical rules, but they

2) 7) /fɛr -fər/; 8) /neɪʃn/

List of phonemes:

/ɛ:/ /k/ /ʊ/ /z/ /i/ /eɪ/ /æ/ /ɔ:/ /ʃ/ /z/ /dʒ/ /ŋ/ /u/ /s/ /ʌ/ /ɪ/

NB: Some phonemes may not be used.

V- Turn the following transcription into a text.

pi:pl frəm 'dɪfrənt pɑ:ts ɒv ðə 'kʌntri spi:k wɪð 'æksənts ðæt ʃəʊ wɪtʃ 'ri:ɔʒən ðeɪ kʌm frəm. ən 'æksənt
m'klu:dʒ 'maɪnə 'dɪfrənsɪz ɪn vəʊ'kæbjʊləri, 'græmə, ænd 'speʃəli prə'nʌnsɪ'eɪʃən

People from different parts of the country speak without accents that show which region they come from. An accent includes minor differences in vocabulary, grammar, and specially pronunciation.

VI- Transcribe the following words and expressions phonemically:

1) I am thinking /aɪ æm θɪŋkɪŋ/

2) teaching /ti:ʃɪŋ/

3)the child /ðə ʃaɪld/

4)at church /æt tʃɜ:(r)tʃ/

6) student /studənt/- /studənt/

7)work /wɜ:(r)k/

VII- What do you think about **illiteracy**? After discussing the topic in **three sentences, underline** and **represent 10 phonemes** from your discussion.

Here, answers will vary

VIII- Pronounce (Repeat) and represent the English phonemes as you hear them and describe them with respect to the three features of a consonant sound (place of articulation, manner of articulation, and voicing) as well as the 4 features of a vowel sound (tongue height, tongue advancement, lip rounding, and tenseness) **(10pts)**.

1- /ɪ/ High, front, unrounded, lax

2- /tʃ/ palatal, affricate, voiceless

3- /n/ velar, nasal, voiced

- 4- /ə/ mid, central, unrounded, lax
- 5- /æ/ low, front, unrounded, lax
- 6- /θ/ interdental, fricative, voiceless
- 7- /u/ high, back, rounded, tense
- 8- /g/ velar, stop/plosive, voiced
- 9- /ɔ/ Mid, back, rounded, lax
- 10- /p/ bilabial, stop, voiceless

NB: Here, the instructor provided learners with the 10 phonemes to represent.

NB: below are the listening to identify phonemes' sections for the pretest and posttest from the instructor.

I- Listening to identify phonemes for the pretest

People from different parts of the country speak with accents that show which region they come from. An accent includes minor differences in vocabulary, grammar, and specially pronunciation

In addition to the pretest package, the posttest package included the students' reaction based on the Likert's scale approach as stated in the results' section.