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Using Explicit Instruction of the International Phonetic Alphabet System in English as a Foreign Language Adult Classes

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Abstract: The effects of international phonetic alphabet (IPA) instruction on English as a foreign language (EFL) adult learners' pronunciation have been well-recognized. However, not many studies on the topic were conducted in the Vietnamese context. Therefore, the current study aims to investigate (1) the impact of IPA learning on Vietnamese EFL adult learners' pronunciation and (2) adult learners' perceptions of the effects of learning the IPA system on their pronunciation. The study was designed as an experimental study, following a mixed-methods approach, using the pre-and-post-tests, questionnaires, and interviews to collect quantitative and qualitative data. Thirty-eight adult learners took part in this investigation; they were divided into two groups, nineteen in the control and nineteen in the experimental group. The experimental study lasted ten weeks before the questionnaires and interviews were administered with the participants in the experimental group. The results demonstrated a significant improvement in adult learners' pronunciation in the experimental group. The participants in the experimental group also highly perceived the positive effects of learning the IPA system on their pronunciation. Pedagogical implications and suggestions were presented at the end of the paper.

Keywords: *Adult learners, English as a foreign language, explicit instruction, international phonetic alphabet, Vietnamese learners.*

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Introduction

Vietnamese is a syllable-timed language in which each syllable takes an equal amount of time to pronounce, and pronouncing the final consonant sound is generally not well-considered. Notwithstanding, English is a stress-timed language. Consequently, Vietnamese learners of English face noticeable quandaries in enunciating English sounds when learning English due to the different features between their mother tongue and English. According to Şenel (2006), exposure to the target language in the native-speaking environment will better learners' language proficiency. Nevertheless, Vietnamese learners do not have these opportunities. Low incomes prevent many Vietnamese learners from possibilities to study abroad in English-speaking settings. Their characteristics, particularly shyness, also somehow hinder their success in learning pronunciation in English. It is inevitable to seek a proper method or technique to teach English pronunciation to Vietnamese English as a foreign language (EFL) learner and their English as well. Using explicit instruction of the international phonetic alphabet system (IPA) is one of the suggestions.

Nonetheless, just a few studies investigating the impact of instructing the IPA explicitly on EFL learners' pronunciation have been conducted (Aliaga García, 2007; Saito, 2007). Moreover, those scanty studies just examined the impact of IPA teaching on English-majored university students, high school students, or young learners; not many focused on EFL adult learners, especially Vietnamese ones. Accordingly, the current research was to investigate the impact of using explicit instruction of the IPA on Vietnamese EFL adult learners' pronunciation and their attitudes towards the effects of learning IPA on their pronunciation in English.

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Literature Review

Pronunciation

Pronunciation plays an indispensable role in English communication (Muhamad & Rahmat, 2020). Yates and Zielinski (2009) stated that pronunciation refers to how people produce the sounds to make meaning when people speak the language. Pronunciation relates to tolerable standards of sounds rhythm for different words (Zemanova, 2007). Richards and Schmidt (2013) defined *pronunciation* as the tangible production of speech sounds, stressing how the hearer grasps the sounds produced. In other words, pronunciation is how the sounds are produced verbally to label the differences between words. Hence, teaching pronunciation is quintessential to promote one's English communication skills.

Teaching Pronunciation

To Richards and Rodgers (2010), a teaching approach is considered a backbone of a method whose procedures follow steps in classroom activities. In other words, a teaching approach refers to comprehensive principles or theories that underpin a pedagogical method. In other words, an approach informs the teaching techniques and procedures (Alghazo, 2015). As possibly agreed by many, there is no best teaching method or technique because its effect in different contexts where it is used is different (Yates & Zielinski, 2009). Literature on pronunciation teaching clearly distinguishes between 'bottom-up' and 'top-down' approaches. Teaching pronunciation in light of the bottom-up approach aims to raise learners' awareness of the differences between their first language sounds and the target language ones and instruct them to consolidate the target language sounds, form syllables, and then connect sequences of words to build an utterance. That is also called a building-block approach to pronunciation instruction by Goodwin (2004). In contrast to the bottom-up approach, the top-down one tends to focus more on the instruction of stress, rhythm, and intonation of the utterances. Each approach aims to bring sought-after effectiveness in pronunciation instruction. The bottom-up approach concentrates on enhancing learners' pronunciation of segmental features, while the top-down approach advances learners' suprasegmentals. Accordingly, balancing the use of the two is optimal to affect learners' pronunciation for better. Teaching pronunciation efficiently, however, is not always realized since several circumstances affect pronunciation learning.

Factors Affecting Pronunciation Learning

According to Elliott (1995), some striking factors affect pronunciation learning, such as learners' attitude and motivation, teachers' instructional strategies, learners' exposure to the target language, and the integration of English pronunciation instruction into the curriculum. Lacking opportunities to practice in their living environment prevents the language learners from developing their pronunciation in the target language (Monaghan et al., 2017). Kenworthy (1987) added factors related to learners' motivation, identity, native language, age, phonetic ability, and their concerns for sound pronunciation. In another study, Susanty et al. (2021) claimed that learners' age considerably affects their learning outcomes. However, Kenworthy (1987) argued that the most substantial factor to learners' pronunciation is their native language, particularly foreign accents. Similarly, Spahiu and Kryeziu (2021) stated a considerable impact of language learners' mother tongues on their pronunciation of the target language. EFL learners, especially adults, are strongly affected by their first language sound system due to the different peculiarities between the native and target language sound systems. Jahan (2011) and Jones (1922) acknowledged that the influence of the mother tongue is a significant force affecting learners' pronunciation. These researchers affirmed that the impact of the mother tongue makes it challenging for learners to recognize and produce the sounds precisely with pitch, stress, and length of sounds. Besides, to Brown (1992), those who have more satisfying listening skills for a foreign language can identify the diversity of sounds and imitate them more satisfactorily. It means that the capacity to discriminate the sounds can affect learners' pronunciation. These factors even trigger adults' pronunciation learning more significantly than the youngsters (King & Mackey, 2007).

Teaching Pronunciation to Adults

Teaching a foreign language to adult learners is a challenging endeavor to most language teachers. Birdsong (1999) asserted that one's language learning ability reduces after some time when that one gets older. Sharing with what Birdsong said, King and Mackey (2007) asserted that children could learn a second language more spontaneously than adults. However, comparing to young learners, adults have their own strengths to learn a foreign language. Particularly, adult learners can learn more by using cognitive abilities to self-monitor and self-correct their language use (Hammond, 1995). However, it is challenging for them to learn productively without explicit teaching (Yates & Zielinski, 2009).

As presented, the native language is one of the principal determinants affecting adult learners' learning pronunciation. Consequently, they need to acknowledge the differences between the two language sound systems. Raising one's awareness of those differences needs to be taken into consideration in teaching pronunciation (Yates & Zielinski, 2009). Adults are significantly influenced by their first language, so it becomes a challenge for them to hear, recognize, and imitate the target language sounds. Then, pronunciation instruction should provide plethora of opportunities for adult learners to listen to native prototypes that can help them discern English sound characteristics. Their awareness of the

similarities and differences in sound features needs to be raised so that they can get used to the English sounds. Later, adult learners need to practice producing the sounds, the most indispensable activity to enable them to speak a language. Due to adult learners' difficulties in learning pronunciation in English, it is fundamental to investigate practical approaches or methods to improve their pronunciation.

Approaches to Teaching Pronunciation to Adult Learners

As stated, using cognitive abilities to acquire a foreign language is one of the strengths of adult learners; it, therefore, is suitable to teach them pronunciation via the formation, meaning, and rule of words in light of cognitive linguistics (Chen, 2009). According to Geeraerts (2008), cognitive linguistics views language as embedded in one's overall cognitive capacities, specifically in one's abilities in mastering the structural characteristics, the functional principles of the language, the conceptual relation between syntax and semantics, the pragmatic background of language-in-use, and the relationship between language and thought. In English teaching and learning pronunciation, it could be helpful to teach learners to count the syllables to help them know the formation of syllables in English. That could explain why EFL teachers often use the intuitive-imitative approach to teach pronunciation, including adult learners. In the intuitive-imitative approach, EFL learners listen and imitate the sounds of English without any explicit instruction (Celce-Murcia et al., 1996). Celce-Murcia et al. highlighted the role of communicative contexts in teaching English pronunciation. Establishing communicative contexts helps improve the effectiveness of pronunciation teaching in intensifying learners' free production, which is relevant to L2 comprehensibility and intelligibility (Levis, 2006; Munro et al., 2006; Saito, 2013). While Munro et al. (2006) defined comprehensibility as one's estimation of difficulty in understanding utterances produced by others, Levis (2006) viewed intelligibility as one's ability to understand others' speeches. To maximize the potentials of communicative techniques in developing EFL learners' comprehensibility and intelligibility, the five-stage implementation of this technique, proposed by Celce-Murcia et al. suggests that EFL teachers should present targeted sound systems within meaningful discourse, provide aural samples of authentic conversations, concentrate on target forms, and practice the forms in both controlled and free communicative tasks.

Different from the intuitive-imitative approach to teaching pronunciation, the analytic-linguistic approach effectively promotes explicit pronunciation instruction (Murphy & Baker, 2015). The analytic-linguistic approach empowers learners to practice and pay more attention to intricate English sounds; then, learners can self-monitor and self-correct their learning. This is why EFL teachers often use the IPA system to visualize the sounds and help their learners imagine, memorize, and practice producing the target sounds. Using the IPA to teach pronunciation frequently takes time, so teachers are advised to consider it thoroughly before thinking of how to maximize its potentials. Recognizing the need to reduce the time-consuming in this approach, Harmer (2007) suggested some possible ways to teach the IPA in time-limited classes. Specifically, Harmer (2007) described that the discrete slot in-class time is divided into smaller sections and different periods to offer learners the chance to practice pronunciation. Integrated phases are combined with a relevant task to teach learners. Opportunistic teaching, integrating teaching pronunciation from time to time during the lesson but trying not to interrupt learners, could offer potential benefits for learners in improving their pronunciation. Moreover, putting transcription in the margin of a note book or teaching materials allows learners to verify how to vocalize the words handily. Phonetic software and e-dictionary would be necessary tools for learners to learn and practice their pronunciation. Unlike the intuitive-imitative approach, this technique employs explicit instruction to progress learners' awareness of how a singular sound is pronounced.

Ear-training technique is suggested as one of the necessary techniques in teaching and learning pronunciation explicitly, particularly in adult learning. Due to the reason that their first language influences their accents, so to have correct pronunciation in the target language, they need to have time to hear the sounds to get used to them. According to Trofimov and Jones (2003), possessing a good ear includes discriminating sounds, remembering the acoustic qualities of foreign sounds, and recognizing foreign sounds with ease and certainty.

Repetition is another technique used in pronunciation instruction. Repetition refers to drills associated with the audio-lingual method or addressed as the repetitive approach by Bradlow et al. (1997). Repetition is a valuable technique to practice pronunciation because speakers can only speak when they are ready to utter the sounds. That is why the role of repetition is still undeniable in pronunciation instruction.

Corrective feedback is also an essential technique for pronunciation teaching. It is helpful for learners to have qualified input and received teachers' feedback to help learners self-correct their mistakes in pronunciation practices (Saito & Lyster, 2012). In the study by Dłaska and Krekeler (2013), the results authenticated that the use of corrective feedback technique contributed more to the development of EFL learners' pronunciation than listening-only activities.

The International Phonetic Alphabet

According to Celce-Murcia et al. (1996), the IPA plays an imperative role in teaching pronunciation explicitly. Consequently, it is indispensable to understand what the IPA is as letter-to-sound consistency in English is not always observed. The formation of an English word does not represent how it is precisely pronounced. Knight (2012) explained,

The in 'book' can be silent in other words like <debt>; the <oo> makes a different sound in 'food' in most accents; the <k> can be silent in other words like 'knight'; the <e> can make a different sound in words like 'pretty' ... (Knight, 2012, p.4)

Therefore, the IPA system has been used as a valuable tool to substitute the consistency of the English spelling system and its pronunciation. The purpose of the IPA is to provide a universally agreed-upon system of notation for the sounds of language. Each phonetic symbol is consistent with a single sound of English in written form. They are considered a comprehensive tool to deal with the diversity of language (International Phonetic Association & International Phonetic Association Staff, 1999). According to Setter and Jenkins (2005), the IPA is a system of symbols that present how to produce the sounds accurately. In other words, each sound in a spoken utterance is represented by a written symbol which assists learners at any level to learn a foreign language quickly, effectively, and accurately. According to Brown (1992), the IPA is used to show word transcriptions in a dictionary, record a language in linguistic fieldwork, form the basis of a writing system for a language, or annotate acoustic and other displays in the analysis of speech.

Benefits of Using Explicit Instruction of the IPA in EFL Classrooms

Many previous studies have investigated the usefulness of the IPA in English teaching and learning. Specifically, the IPA can help EFL students visualize complicated codes representing words as sounds, increase their awareness of English sound features, and promote learner autonomy when looking up words and their corresponding pronunciation in dictionaries (Atkielski, 2019; Putri, 2018). Also, phonetic transcriptions reduce ambiguity, redundancy, or omission (Atkielski, 2019; Ghorbani, 2019; Trazo & Abocejo, 2019). Atkielski concluded that the IPA helps EFL teachers save time and facilitate their teaching. Regarding learners, Pennington (1996) believed that graphic representations of sounds are valuable resources in enhancing EFL students' pronunciation. Therefore, it is beneficial to teach the IPA in EFL classrooms. However, the IPA also has its downsides. Specifically, the IPA may become worthless and trivial if EFL teaching is carried out unfavorably. Therefore, the IPA implementation in teaching pronunciation does not always work.

Echoing the benefits of teaching the IPA, Mompean (2015) has reviewed four potential advantages of phonetic notation in foreign language teaching and learning: systematicity, awareness-raising, visual support, and autonomous learning. The inconsistency between English spelling and sounds causes some confusion for English learners, and the existence of the IPA symbols reduces that complexity since each symbol represents one sound. In her study, Mompean also stated that phonetics could be helpful to raise learners' awareness of the differences between L1 and L2 sound features and draw learners' attention to linguistic elements. Furthermore, phonetic symbols can work as a visual reminder of the auditory stimuli to learners.

Regarding autonomous learning, knowledge of phonetics may help learners inside and outside the classroom when they want to learn how to pronounce a new word without the teacher's assistance. Learners tend to use the dictionary to see the transcription of words with the help of the audio function in the dictionary. Notably, advanced learners can practice pronunciation and self-correct their mistakes.

Related Studies

In Aliaga García's (2007) study, phonetic training in L2 speech learning was carried out at the University of Barcelona. Phonetic training on perception and production of a set of English sounds was conducted in the experimental group in six weeks. The results from the pre-test and post-test indicated that the training had some significant short-term effects on learners' pronunciation. For instance, the training improved learners' discrimination of English vowel contrasts, and they paused more comprehensively in their speeches. It was concluded that learners showed improvement in some areas of pronunciation, but they would need more time to be exposed to the training program. However, how the IPA affected participants' pronunciation might not be clearly unpacked in the findings because the level of participants before the treatment did not seem to be included specifically. Therefore, exploring the extent to which phonetic training may affect L2 learners' pronunciation could be a rewarding investigation.

Another empirical study by Saito (2007) was conducted in a group of 18 slow university students in Japan who were divided into control and experimental groups. The students in the experimental group took one semester in the course 'Four skills in English' in which they received the IPA instruction for fifteen minutes every period. After the treatment, the results of the pre-test and post-test in the experimental group were significantly different. Observations during the treatment were also recorded and showed that participants' pronunciation changed for the better after the course.

Mompean (2015) reviewed potential advantages of the learning of the IPA in pronunciation lessons. The study investigated participants' perception of five clusters of potential advantages of the IPA, including awareness-raising, visual support, autonomous learning, ease and usefulness, and familiarity. Learners' views on learning phonetic symbols were collected from four participants: Finnish, French, and Spanish. The results showed that more learners (80 %) had positive responses towards the IPA in their learning process. Remarkably, the awareness-raising potential of the IPA and visual support were supported mainly by more than 80% of the participants among the five potential advantages mentioned. There were some differences between learners from different countries. However, this study was conducted on advanced learners who had a high level of language proficiency. It could be handy if those advantages were tested on

low-level learners, which can help both teachers and learners be more aware of the use of the IPA in pronunciation learning.

Jahan (2011) explored students' views about pronunciation learning in Bangladesh, a focus group discussion was conducted. The ten participants in the study mostly came from small towns where learning English is only restricted to the classroom. The results showed that most students were aware of the importance of pronunciation in English learning, and they showed their positive attitudes towards IPA learning in their pronunciation classes.

In conclusion, learning the IPA is considered a valuable tool to help adults improve their pronunciation. However, in Vietnam, few studies have investigated to what extent it affects non-English-majored learners, particularly those with a low level of proficiency. Therefore, to fill that gap in previous studies, the goals of the present study are to test the effects of explicit instruction of the IPA on adult learners' pronunciation in a Vietnamese context and acknowledge how they perceive the impact of the IPA on their pronunciation. The current study addressed two main research questions as follows:

1. What are the impacts of explicit instruction of the IPA on EFL adult learners' pronunciation?
2. How do EFL adult learners perceive the impacts of learning the IPA explicitly on their pronunciation learning?

Methodology

Study Design

To investigate the effectiveness of instructing the IPA system explicitly on learners' pronunciation and EFL adult learners' perception of explicit learning of the IPA, the current study was designed as an experimental study, using the mixed-methods approach. First, a pre-and post-test on pronunciation were used to collect data from thirty-eight adult learners from both the experimental and control groups. Then, a questionnaire and interviews were administered to explore the perceptions of the nineteen participants in the experimental group on the effect of learning the IPA on their pronunciation.

Participants

Thirty-eight adult learners with full-time jobs, ranging from 26 to 45 years old, were consented to participate in this current study. They were randomly allocated for learning in two different groups, a control group and an experimental one. The control group included nineteen learners, consisting of five males and fourteen females. In the experimental group, there were four male and fifteen female learners. The learners were at the pre-intermediate level of English proficiency, and they all desired to develop their English to serve their current careers, including school teachers, banker tellers, taxi drivers, engineers, and social workers.

Instruments

Tests

Holistic and atomistic are the two approaches used for pronunciation assessment (Šebestová, 2007). For the former, the assessors pay attention to factors contributing to overall oral effectiveness. It is used in international standardized exams, and intelligibility and comprehensibility are essential criteria. In the atomistic approach, the assessors focus on specific pronunciation features, including segmental and supra-segmental features. In particular, learners' vowel and consonant production is tested at the segmental level, while at the supra-segmental level, intonation and linking are assessed. However, in this study, due to EFL adult participants' limited English proficiency and the purpose of the study, the current study employed the tests to examine their abilities to pronounce words at the segmental level only, including consonants, vowels, and word stress, taking intelligibility into consideration.

Before conducting further quantitative analyses, a Scale test was run to check the reliability of the pre- and post-tests. The Scale test results showed that both tests were reliable for further analyses ($\alpha=.73$ & $\alpha=.78$, respectively). The pre-test and post-test on pronunciation included 25 words with more than three syllables and their phonetic transcriptions provided in the margin of test paper. The research team used a 10-point scale to grade the learners' performances on the production of consonant and vowel sounds, and word stress placement. Each correct item was scored the mark of 0.4. Two raters evaluated the participants' pronunciation independently, and the decisive score is the average score awarded by these two raters. The raters were chosen because of their experiences in teaching English, more than 20 years, and their exposure to the native English language environment, two and three years respectively. Also, these two inter-raters were invited to participate in this current study as the instructors, one for the control group and another for the experimental group.

The results of the pre- and post-tests were subjected to SPSS version 20.0. Regarding the pre- and post-tests, a Descriptive Statistics test was first run to check the average mean score of the adult learners' pronunciation before and after the study. To examine whether the participants from both groups' pronunciation before and after the intervention were

different, Independent Sample T-tests were used. Then, Generalized Linear Model for Repeated Measures tests were run to check the progress of the participants' pronunciation within each group from the pre-test to the post-test. For the effect size analyses, a significant effect size was only considered if $p < .05$. According to Cohen (2013), if d-value is from 0.2 to 0.5, the effect size is small, from 0.5 to 0.8, medium, from 0.8 to 1.2, large. If d-value is higher than 1.2, the effect size is very large. The effect size was calculated by using the functions provided by the website <https://www.socscistatistics.com/>

Questionnaires

The questionnaire adapted from the study by Mompean (2015) included five clusters: awareness-raising, visual support, autonomous potential, familiarity with the IPA, and the usefulness of IPA. Fourteen items were included in the questionnaire using the 5-point Likert scale ranging from *strongly agree*, *agree*, *neutral*, *disagree*, and *strongly disagree*. The questionnaires were both in the Vietnamese and English language to avoid any misunderstanding the questionnaire might cause to respondents. In order to explore the adult learners' perceptions of the IPA impact on their pronunciation learning, the questionnaire was delivered to the nineteen participants in the experimental group. Before principally administering the questionnaire, the questionnaire was piloted with 30 adult learners who had experienced learning with the IPA system. The reliability of the pilot questionnaire was tested by SPSS version 20.0. According to the Scale test results, the coefficient alpha ($\alpha = .78$) was at an acceptable level of reliability for an instrument to be used for data collection.

To data collected from the questionnaire, a Scale test was first run to check the reliability of the results. The test results were sufficient for further analyses due to the coefficient alpha ($\alpha = .82$). Then, a Descriptive Statistics test was run on the five-cluster inventory, including usefulness of IPA, visual support, awareness-raising, autonomous potential, and familiarity with IPA, to examine the experimental group's perceptions of the IPA impacts on their pronunciation learning. Then, a Descriptive Statistics Frequencies test was computed to examine if participants' responses to the questionnaire were normally distributed. The result identified a normal distribution of participants' responses collected from the questionnaire ($M = 3.98$; $Median = 4.05$; $Skewness = -.11$).

Interviews

The interviews included open-ended questions to allow the researchers to gain insights into participants' ideas related to possible benefits and challenges that individuals might experience when learning the IPA system in pronunciation lessons. The interview questions were piloted with three adult learners who learned with the IPA system. To ensure the reliability of the data, all interviews were recorded with participants' consent. The interview questions were adjusted to ensure their validity and reliability in data collection based on the pilot interviews. The interview questions included three sections:

1. Questions about personal information such as name, age, job, English learning experiences
2. Questions about the participants' perceptions of the impacts of the learning of the IPA on their pronunciation
3. Questions about the participants' feelings about their learning experiences with the IPA

In terms of qualitative data analysis, the data were analyzed according to two main themes of attitudes and challenges. For inter-rater reliability of the data analyses, members of the research team coded and cross-checked the data for the researched themes. Based on the literature review, the research team came to an agreement for rating, coding, and assessing the same phenomenon. The research team followed the following procedures of **analyzing qualitative data**. First, interview transcripts were first read through to help the researchers familiarize themselves with the data. Ideas related to participants' positive perceptions were coded green and negative perceptions, yellow. Then, all excerpts of the same code were organized. Sub-themes of perceptions (e.g., increasing one's confidence in communicating in English) and those of negative perceptions (e.g., challenges) were identified. Then, the researchers developed interview protocols comparing and contrasting what each respondent provided in their interview regarding the themes and sub-themes. Doing this, the researchers were informed of participants' attitudes to and challenges they faced learning the IPA as the whole and individually.

Procedures

The intervention program lasted ten weeks. The pre-and post-tests on pronunciation were different but at the same level of difficulty. The tests carried the same format and numbers of words. All words were not taught because the main aim of the test was to examine learners' awareness of how to pronounce new words throughout the IPA transcriptions.

Pronunciation teaching is often integrated into English communication classes because the lack of correct pronunciation is one of the problems EFL learners encounter in communication (Wahyuningsih & Afandi, 2020). Similarly, both groups aimed to develop their communication skills, including speaking and listening comprehension, in which the role of pronunciation is highlighted. Both instructors followed the five stages of the communicative framework in delivering

pronunciation courses, including *Description and Analysis*, *Listening Discrimination*, *Controlled Practice*, *Guided Practice*, and *Communicative Practice*, proposed by Celce-Murcia et al. (1996). The steps were as follows:

- Stage 1: The instructors showed the articulatory differences between the target sounds. In this stage, the instructors mainly used instructional tools and techniques, such as the sagittal or profile diagram sketches in pronunciation textbooks. Besides, other techniques, such as drinking straws or popsicle sticks, were used to help the adult learners feel the position of their tongues to pronounce the words more accurately.
- Stage 2: The instructors provided the adult learners opportunities to distinguish the differences of the target sounds. Techniques for practicing minimal pairs were mainly used to help the learners identify the words containing different phonemes.
- Stage 3: The learners were encouraged to focus on accurately articulating the target sounds in this stage. The instructional strategies, including reading aloud, tongue twisters, and dialogues practicing, were often used to assign the learners to work in pairs. In each pair, one learner practiced their pronunciation, and the other one listened, monitored, and provided feedback on his/her partner's performance.
- Stage 4: The activities, including information gaps and cued dialogues, were often used in this stage to focus on the target sounds to practice. Moreover, in this stage, the instructors were expected to give clear directives to the adult learners and provide sufficient assistance to the learners' needs.
- Stage 5: The instructors designed the less structured instructional strategies, such as storytelling, role play, and problem-solving, to help the learners practice and attend to the target pronunciation features and their messages.

Both instructors of the experimental and control group followed the similar procedure in the communicative framework proposed by Celce-Murcia et al. (1996) in delivering the intervention. However, there were two principal differences in the experiment, including teaching materials and teaching techniques. First, in Stage 1, the experimental group was explicitly instructed the IPA whereas it was not applied to the control group. In Stages 1 and 2, both group received a list of the same words and minimal pairs to practice pronouncing words. The experimental group received a list of words with the IPA transcriptions while those in the control group, without. Second, during the tasks time, whereas the instructor of the experimental group used explicit instruction with the IPA transcriptions to guide the learners how to pronounce particular sound features, the learners in the control group practiced the new words with the repetition technique by word drillings. During the drilling process, if the learners in the control group mispronounced particular words, the instructor modeled those words and asked the learners to repeat the words until they were able to pronounce the words intelligibly.

Before the treatment, the participants in both groups took the pre-test to assess their pronunciation of words. In the 11th week, the post-test was used to assess the impact of the intervention. The questionnaires were delivered to the experimental group after they finished the post-test. Two weeks later, six out of nineteen participants in the experimental group, named A, B, C, D, E, and F, were invited to participate in individual semi-structured interviews. The participants for interviews were invited based on their learning progress in the experiment, signified by their scores from the pronunciation tests. Three least successful learners marked as A (an engineer), B (a taxi driver), and C (a social worker), and three most successful learners, D (a school teacher), E (an engineer), and F (a banker teller), were involved in the interviews.

Results

EFL Adult Learners' Pronunciation Before and After the Study

Table 1 displays the results of the Descriptive Statistics test, which was run to check the average mean of the participants' pronunciation scores before and after the study.

Table 1. Participants' Gains in Pronunciation Before and After the Study

| Tests | Groups | N | Min | Max | Mean | SD | p | d |
|--------------|--------------------|----------|------------|------------|-------------|-----------|----------|----------|
| Pre-test | Control group | 19 | 0.80 | 4.00 | 2.88 | .80 | .71 | - |
| | Experimental group | 19 | 1.20 | 4.00 | 3.42 | .98 | | |
| Post-test | Control group | 19 | 1.20 | 4.00 | 2.99 | .98 | .00 | 1.78 |
| | Experimental group | 19 | 2.40 | 9.20 | 5.09 | 1.35 | | |

Then, Independent Sample T-tests were run to examine whether the participants from the two groups were different in terms of their pronunciation before and after the study. According to the pre-test results, the two groups had the same level of English pronunciation before the treatment ($M_{con}=2.88$; $M_{exper}=3.42$; $p=.71$). Otherwise, there were a significant difference between the post-test results of the control and experimental groups. Specifically, the results of the experimental groups were higher than that of the control one ($M_{con}=2.99$; $M_{exper}=5.09$; $p=.00$). In other words, the experimental group pronounced English words better than their counterparts after the study. Besides, the Cohen's d

value ($d=1.78$) indicated that there was a very strong interaction between the intervention and the post-test results between the two conditions. It means that the intervention significantly affected the distinction between the control group and the experimental one in their posttest results.

Then, a Generalized Linear Model for Repeated Measures test was run to check the progress of the participants' pronunciation within each group from the pre-test to the post-test. Figure 1 portrays the change of participants' pronunciation from the pre-test to the post-test.

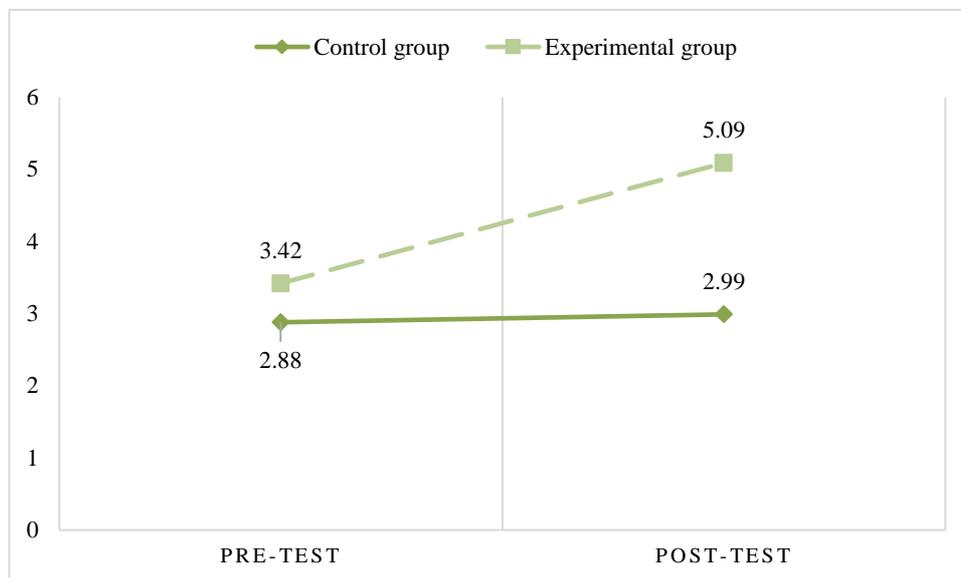


Figure 1. Learners' Pronunciation Before and After the Intervention

According to the test results, the control group did not change their pronunciation after the intervention ($F=1.60$; $p=.52$). The experimental participants significantly improved their pronunciation after the treatment ($F=29.6$; $p=.00$). Then, Cohen's d -value was calculated in order to check the effect size in the change of the experimental group. The calculation showed that the effect size was very large ($d=1.42$). In other words, the treatment considerably affected the change in the experimental group according to their pronunciation before and after the intervention.

EFL Adult Learners' Perceptions of the Impact of Learning the IPA

The researchers employed a Descriptive Statistics test to check the experimental group's perceptions of the IPA impacts on their pronunciation learning. Table 2 illustrates the test results.

Table 2. EFL Adult Learners' Perceptions of the IPA Impacts (N=19)

| Impacts | Minimum | Maximum | Mean | Std. Deviation |
|----------------------|-------------|-------------|-------------|----------------|
| Usefulness of IPA | 3.75 | 4.50 | 4.16 | .12 |
| Visual support | 4.00 | 5.00 | 4.39 | .21 |
| Awareness-raising | 4.00 | 4.67 | 4.18 | .20 |
| Autonomous potential | 3.67 | 4.67 | 4.00 | .26 |
| Familiarity with IPA | 2.50 | 4.00 | 2.95 | .42 |
| Overall | 3.58 | 4.56 | 3.98 | .16 |

Based on the test results, the participants highly perceived the effect of learning the IPA system on their pronunciation ($M=3.98$; $SD=.16$). The results also showed the participants' highest appreciation for the *visual supports* of the IPA system to their pronunciation learning ($M=4.39$).

Participants' Perception of Learning the IPA

The qualitative data from the interviews also brought many significant findings. First, learning the IPA enhanced their confidence and frequency in speaking English. Learner B said,

"Before learning the IPA, I think English pronunciation is difficult, and I do not know how to read a word and where to check whether I am right or wrong. Nevertheless, now, it becomes less challenging for me. At least, with simple words, I can check the dictionary and pronounce them. [...] Learning with the IPA helped

me improve my pronunciation, which enabled me to read and speak English and feel more confident and I communicate with my friends more often in class in the target language.” (Learner B; Taxi driver)

As can be seen from the above except, learner B also acknowledged one important role of learning the IPA, which is supporting learners to develop their self-study skills in using dictionaries to learn how to pronounce English words. Learning a language is a life-long endeavor and it does not just happen within a language classroom where learners can receive teachers’ timely assistance. Learning the IPA also enhances the participants’ self-study which is echoed by learners B, D and E in their claims during the interviews. They said,

... “I do not have to wait for my teachers to help me all the time to read a word, and when I see a word or when I forget a word, I can check by myself.” (Learner B; Taxi driver)

... “When seeing a new word and my teacher is not there, or when I do not have my phone with me; looking at the phonetic transcription I can still read that word.” (Learner D; School teacher)

... “I think I like the best about learning the IPA is that I can read a word through its transcription even that word is new to me.” (Learner E; Engineer)

The participants thought that the more familiar with the IPA and how to pronounce English participants became, the better their listening skills were. Learner A stated,

... “It increased my listening skills. [...] When I was able to understand what I listened to, I listened more often, then I could understand the words faster and became more familiar with that.” (Learner A; Engineer)

It is clear that learners became more encouraged and willing to get involved in the task of learning English as their pronunciation improved. Using explicit instruction of the IPA shows to be an important initial step in promoting learners’ communication skills in the target language. The participants also emphasized the usefulness of visualization that the IPA contributes to their awareness of how to pronounce a new word. Learners C and F shared,

“...Looking at the phonetic transcription helped me know how to pronounce a word easier, for example how to pronounce consonants such as /s/ or /ʒ/ and where to put the word stress.” (Learner C; Social worker)

“...For instance, the word ‘key’ when I look at its spelling I might not pronounce correctly, but when I look at its phonetic transcription, I can read it correctly. [...] Especially it helps me recognize the short /ɪ/ and the long /i:/.” (Learner F; Banker teller)

Some challenges in learning the IPA were also identified by the study participants. Learners’ time-constraint and the short duration of class time devoting to teaching the IPA somehow hindered their familiarity with the IPA system. Learners E and B admitted,

... “If I had more time, I could learn more, then my pronunciation would be better....” (Learner E; Engineer)

... “I first got used to the IPA, so it took me time to be able to read and understand the phonetic symbols....” (Learner B; Taxi-driver)

As described, all participants in this English Communication course are full-time employees who can spend just their evenings for English lessons, so lacking time for investing into their English learning, especially practicing the target language, caused certain challenges for them, not only in pronunciation learning.

In summary, this current study investigated several potential contributions of teaching the IPA to the development of EFL learners’ pronunciation. Using explicit instruction of the IPA enhanced participants’ abilities to pronounce English consonants and vowels more intelligibly and place word stress on right syllables; participants expressed their positive attitudes to the effects of learning the IPA on their pronouncing consonant or vowel sounds.

Discussions

In this study, the intervention program positively affected EFL adult learners’ pronunciation. Teaching learners the IPA explicitly as suggested by the analytic-linguistic approach provided empirical evidences on learners’ improving production of consonant and vowel sounds, and word stress placement. The results of this experimental study were similar to the one by Saito (2007), which found that the learners learning pronunciation with the IPA system significantly developed their pronunciation. The results showed that learners gained manifold benefits from the intervention, such as increasing awareness of sound features (Atkielski, 2019), fixing their common errors through awareness-raising in linguistic elements, and developing conceptual images of sounds through phonetic symbols (Mompean, 2015). Participants in this study are full-time employees who spend much of their time fulfilling their job duties and on family life as well, so their sensibility for recognizing English sounds seem to be somehow limited during evening English communication classes. Taking age and language environment (Elliott, 1995; Kenworthy, 1987; Monaghan et al., 2017; Susanty et al., 2021) into consideration, it becomes clear that these two factors are not favorable for the participants in this study as their age range is from 26 to 45, and English is used as a foreign language in Vietnam where exposure to the

language is mostly in English classes. Assisting this group of learners in reading the IPA and producing the sounds by explicit instruction showed to be a rewarding instructional technique which could explain the positive gain in this study.

Even though the experimental group significantly developed their pronunciation, the mean score was imperceptibly just above average according to the 10-point grading system in Vietnam ($M=5.30$). In addition to an English language environment outside the classroom, the distinctive differences between the learners' mother tongue and English could prevent them from acquiring the target language (Denizer, 2017; Jahan, 2011; Jones, 1922; Kenworthy, 1987; Spahiu & Kryeziu, 2021). Specifically, a consistency between spelling and pronunciation in Vietnamese language is clearly observed whereas such is a different case for English. Also, while Vietnamese is a syllable-timed language, which takes its speakers an equal amount of time to pronounce each syllable, English is a stress-timed language, requiring the speakers to pay attention to stress, intonation, sound lengths, final sounds, and more. These contrastive features possibly caused certain challenges for EFL adult learners, which hindered their utmost development of pronunciation. The duration of a ten-week intervention program could more or less explain the average degree of achievement regarding learners' production of consonants, vowels and stress placement in this study ($M=5.09$). A longer period of time intervening EFL adult learners with the IPA could yield higher gains in learners' pronunciation.

The results of this study were strongly supported by Riza's (2021) study, which indicated that both EFL teachers and learners have positive attitudes towards the use of IPA in teaching and learning pronunciation. Setter and Jenkins (2005) defined the IPA system as a system of symbols presenting how to produce the sounds. In this current study, IPA might be considered a visual aid in the learners' learning, which significantly impacted their attitudes towards learning English pronunciation. According to Ngonyani (2018), visual aids play an essential role in EFL learners' academic performance. Teaching the IPA explicitly to EFL adult learners showed to be a good instructional choice as the teaching technique functioned as a proper support to the right learner population, which resulted in learners' favorable attitudes towards the technique.

According to the results from semi-structured interviews, the sense of improvement in pronunciation after learning with the IPA system enhanced participants' confidence in English-speaking skills. It was similar to Varasarin's (2007) study, which indicated that improved pronunciation accuracy and developing one's confidence in speaking English are positively correlated. Furthermore, being exposed to the IPA improved the learners' listening comprehension according to their perspectives. The findings concurred with the study by Qadir and Rizwan (2020), which confirmed the contributions of the IPA system to developing EFL learners' listening skills. Undoubtedly, intelligible pronunciation is an essential part in language learners' communicative competence. Besides, one of the prominent contributions of the IPA system to EFL learners' pronunciation is to improve their awareness of sound features of the target language (Atkielski, 2019; Bai & Yuan, 2019). Getting exposed to the IPA system might make a positive impact on the adult learners of the experimental group and allow them to self-recognize their mispronounced words. Upon self-recognizing one's mispronunciation, learners could self-correct their mistakes and become more confident in their oral speeches. Consequently, improved pronunciation when learning with the IPA sheds light on the learners' self-efficacy in English learning, especially speaking and listening skills.

Moreover, the IPA symbols played an important role in why the adult learners in the experimental group showed their positive attitudes towards the IPA. Atkielski (2019) revealed that the IPA system helps learners visualize complicated codes representing words as sounds and increase their awareness of English sound features. Those who have learned English without exposure to the IPA tend to use letter-based pronunciation, which conceivably causes mispronouncing words. Nevertheless, phonetic transcriptions reduce ambiguity, redundancy, or omission (Atkielski, 2019; Ghorbani, 2019; Trazo & Abocejo, 2019). Therefore, it might help the adult learners avoid misrecognizing the words whose forms and pronunciations are different. As a consequence, the post-test result of the learners' pronunciation in the experimental group showed a significant difference compared to that of the pre-test.

Last but not least, learning the IPA made a significant impact on the learners' learning autonomy (Putri, 2018). Regarding autonomous learning proposed by Mompean (2015), phonetic knowledge may increase EFL learners' willingness to learn inside and outside classrooms, with or without their teachers. Autonomous learning might encourage the learners to check the word pronunciation and word transcriptions to practice their pronunciation and correct themselves without their teachers' assistance.

Conclusion

The results of the study suggested an empirical pedagogical implication that phonetic training worked for EFL adult learners. In other words, segmental training could be a helpful instructional strategy to assist learners in reaching a higher level of pronunciation, leading to intelligibility. Remarkably, the learning of the IPA worked for less proficient English learners, especially busy learners. Hence, teaching the IPA could be part of English language communication courses to improve learners' pronunciation, especially for adult learners in EFL settings. It is highly recommended that the use of technology could be encouraged to optimize the effectiveness of teaching the IPA towards a level of intelligible pronunciation.

Recommendations

As presented, both external and internal validity of the study caught the researchers' concern. Generalizing the results of this current study should be cautious as the n-size was not big enough. The duration of the intervention program could be longer. It is recommended that further studies on this topic recruit more participants and the treatment last at least fifteen weeks to see whether any new findings compared to this study could be identified.

Regarding the design of the would-be studies in this field, designing an experimental study with comparison groups and a control group would contribute insightful look into explicit instruction of pronunciation. For instance, it is worth comparing the impact of teaching the IPA on EFL learners' pronunciation to other instructional strategies such as ear-training technique or feedback giving. Finally, further research is encouraged to test the impact of explicit instruction with IPA on EFL learners' comprehensibility through understanding other people's oral communication and their pronunciation in their spontaneous speeches.

Limitations

Limitations of this study were unavoidable. Due to the time limit and the influence of the Covid-19 pandemic, the duration for the treatment could not have been longer, and the study size could not be more extensive. As a result, it still left a significant concern about whether the use of explicit instructions with IPA could foster the adult learners' pronunciation more if the intervention were extended. The n-size of the study could also be bigger though the researchers invited as many participants as possible to the study.

Authorship Contribution Statements

Trinh: Conceptualizing the study, monitoring the experiment, ensuring the quality, editing the report. Nguyen: Reviewing literature, planning the experiment, implementing the intervention and collecting data. Le: Reviewing literature, analyzing data and drafting the report

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