

Theoretical Review of Phonics Instruction among EFL Beginner-level Readers in China

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Abstract

This article aims to conduct a theoretical review of phonics and its instruction among EFL beginners in China to provide an overall understanding of the basic concepts of phonics and phonics instruction, as well as the relevant theories. Based on previous literature, the findings indicated that phonics refers to the letter-sound relationship and that phonics instruction is the optimal teaching activity through which to implement phonics. Three major phonics instruction approaches can be identified, of which the synthetic phonics instruction approach might be the most appropriate for EFL beginners. In addition, to enhance the effects obtained from phonics instruction, beginners should be prepared with knowledge of the alphabet and phonemic awareness. Finally, certain relevant theories, such as behaviourism and constructivism, may provide the theoretical foundation for phonics and its instruction in EFL settings in China.

Keywords: Phonics Instruction, EFL Beginner-Level Readers, Behaviourism, Constructivism, Zone of Proximal Development, Cognitive Development

Introduction

In China, English as a foreign language is compulsory from primary school onwards. According to the National English Curriculum for Compulsory Education (2011), phonics, which is defined as the letter-sound relationship (Bear et al., 2020) is required for learning English. Since then, phonics has been included in primary school English textbooks produced by various publishing houses and numerous studies have been conducted on EFL beginner-level readers (Huangpu, 2017). Via a search of the China National Knowledge Infrastructure (CNKI) and the results of research by Huangpu (2017), most empirical studies have focused on the effects of phonics instruction on EFL beginners from Grade One to Grade Nine, also known as the compulsory education phase. Such previous studies in China indicate that phonics instruction benefits EFL beginners, especially by enabling them to improve their word recognition ability, spelling ability, phonemic awareness, and English learning motivation (Huangpu, 2017). However,

learning to read English, especially in EFL settings, is a complex task for EFL beginners. It involves cognitive learning progress, a learners' knowledge construction process, and an environmental stimulus (Schunk, 2020; Sivakumar & Dhananraj, 2017). During such learning processes, both learners and teachers are involved (ILA, 2020). EFL teachers are responsible for manipulating the stimulus (input) in the learning environment (Budiman, 2017). As Blevins (2017) and the International Literacy Association (ILA) (2019) asserted, the teachers' knowledge base also has a crucial effect on phonics instruction quality. Since no articles have yet focused on introducing the basic concepts and theories related to phonics instruction in EFL settings among EFL beginners, the main purpose of this article is to conduct a theoretical review of phonics instruction among EFL beginners in EFL settings in China. For the purposes of this review, six research questions will be addressed:

- What is phonics?
- What is phonics instruction?
- Which phonics instruction approach is appropriate for EFL beginners?
- What are the necessities of implementing phonics instruction with EFL beginners?
- What are the prerequisites for phonics instruction?
- Which theories are relevant to phonics instruction for EFL beginners?

Definitions of Phonics

As Bear et al (2020) noted, English is an alphabetic language containing twenty-six letters. Each letter in the English language is capable of producing one or more sounds. The letter-sound relationship is frequently referred to as "phonics" (Bear et al., 2020). However, phonics definitions generally are classified into three categories.

These three categories are as follows: the relationship between letters and their sounds (Adams, 1990; Durkin, 1993; Groff, 1989; Johnson & Pearson, 1978; Sprague, 2014; Tipton, 2018), the method used to teach early reading (Dow & Baer, 2007; Groff, 1989; Smith, 2014; Stuart, 1995) and the ability to comprehend the letter-sound relationship (Bear et al., 2020; Blevins, 2017; ILA, 2019; Kelly, 2016). However, numerous scholars (Blevins, 2017; ILA, 2018; Williams, 2006) have emphasised that phonics is not a specialised approach to instruction. On the contrary, several instruction approaches can be applied. Thus, it is essential to distinguish between phonics and phonics instruction in terms of definition and usage (Blevins, 2017; ILA, 2018).

Definitions of Phonics Instruction

Phonics instruction is a form of teaching activity that aims to assist beginners in comprehending how letters are connected to sounds in order to establish letter-sound relationships and spelling patterns, which they can then use in their reading and writing (ILA, 2018; Lyon & Moore, 2003). Connelly et al. (2011) asserted that such teaching should be explicit, although it should also be systematic (Blevins, 2017; ILA, 2019). According to the ILA (2019), explicit phonics instruction entails the explicit and systematic introduction of letter-sound relationships to learners, which is more effective than requiring students to discover hidden rules. Additionally, systematic instruction entails progressing from the simple to the complicated and gradually introducing sounds and skills (ILA, 2019). The ILA's (2019) definition of explicit and systematic phonics instruction is consistent with the Bottom-Up Theory of Reading Process, which states that the instructional pattern for phonics should follow a sequence from simple to complicated through direct instruction (Amadi, 2019). To determine which form of phonics instruction is most appropriate for the EFL context in China,

three major phonics instruction approaches are analysed synthetically and critically in this paper.

Three Major Types of Phonics Instruction Approaches

As Blevins (2017) asserted, three major approaches can be employed to teach phonics: the synthetic phonics instruction approach, the analytic phonics instruction approach, and the analogy phonics instruction approach. According to the ILA (2019), most recent debates have focused on the relative effectiveness of two distinct approaches, known as synthetic phonics instruction and analytic phonics instruction. However, if phonics instruction is defined narrowly as the planned, systematic, and explicit instructional activities that are utilised to assist learners in developing the letter-sound relationship, it refers exclusively to the synthetic phonics instruction approach. (Blevins, 2017; ILA, 2019)

To clarify the concept of each type of phonics instruction approach and determine which is the most appropriate for EFL students in China, the three major phonics instruction approaches are discussed in the following sub-sections.

The Synthetic Phonics Instruction Approach

The synthetic phonics instruction approach begins with teaching individual sounds and blending sounds to generate words (Bear et al., 2020). Via synthetic phonics instruction, beginners are able to convert letters to sounds and then blend the sounds to vocalise words (Machin et al., 2017). Johnson (2016) elaborated on the synthetic phonics approach, which is often known as direct or explicit phonics instruction, based on behaviourist perspectives of reading instruction. Language beginners begin by recognising letters, before progressing to blending words and then reading connected text. More specifically, in this instructional approach, the names of letters are taught before their sounds. Subsequently, decoding rules are discussed and the notion of blending sounds to make words is taught in an explicit and progressive manner (Blevins, 2017; Johnson, 2016). Finally, blending tasks are included to assist beginners to develop their word reading abilities. This approach aligns with the Bottom-Up Theory of Reading Process (Amadi, 2019). Decoding sub-skills can be gained to achieve automaticity through the synthetic phonics instruction approach, which has been characterised as direct, explicit, and from simple to complicated (Johnson, 2016). Gradually, greater attention, or so-called capacity, (Aldhanhani & Abu-Ayyash, 2020; Pearson & Kamil, 1979) can then be devoted to the more advanced reading layer.

As the ILA (2019) noted, the synthetic phonics instruction approach is explicit, systematic, and beneficial to everyone - particularly struggling readers and those with limited experience of the English language - while harming none. EFL beginners in China can undoubtedly be regarded as these types of readers. As the ILA (2019) noted, being explicit means that beginners are explicitly and directly introduced to letter-sound relationships or the associated skills. This approach requires no prerequisite skills or accumulated vocabulary, which some beginners may lack. In this respect, explicit synthetic phonics instruction is appropriate for EFL beginners in China, who are just starting to learn English in elementary schools and lack both prerequisite skills and an accumulated vocabulary.

Additionally, the ILA (2019) clarified that being systematic entails following a planned continuum from simple to complex in order to teach letter-sound relationships and new skills. This includes reviewing previously learnt skills to achieve mastery and then progressing to new ones. In other words, beginning with known or mastered concepts and progressing to new ones can facilitate the learning process for beginners. The instruction follows the bottom-

up model (Johnson, 2016), also known as the bottom-up phonics instruction approach (Blevins, 2017). Additionally, the ILA (2019) has indicated that notable research results support the effectiveness of an explicit and systematic synthetic phonics instruction approach. Thus, synthetic phonics instruction may be the most appropriate approach to employ with EFL beginners because this enables the students to first learn the phonemes and then blend them to vocalise words, which is consistent with the Bottom-Up Theory of Reading Process.

The Analytic Phonics Instruction Approach

According to Blevins (2017), Johnston and Watson (2007), and the ILA (2019), the analytic phonics approach is also known as indirect or implicit phonics and occasionally as the discovery or top-down approach. Through this approach, beginners are introduced to previously learnt sight words and asked to deduce the letter-sound relationship. The presumption is that beginners have already become familiar with the sounds associated with the listed words. Beginners are then required to investigate the word list to discover common points between the words, focusing on finding a similar sound. When a typical sound is identified, the spelling associated with the sound may be discussed. It is then possible to generalise the use of a particular sound for letters or clusters. Hence, this approach is based on “known sight words” and is taught in a whole-to-part or top-to-bottom fashion (Blevins, 2017; Friedman, 2019).

Meanwhile, as the ILA (2018) noted, phonics instruction occurs on three levels: the alphabetic layer, the pattern layer, and the meaning-morphological layer. If all three layers are taught analytically through the analytic phonics instruction approach, the training may take a long time to finish. Additionally, learners must have read extensively to build up their sight vocabularies to identify sound similarities between words (Parker, 2019). Similarly, Blevins (2017) asserted that analytic phonics instruction may take two to three years, whereas synthetic phonics can be taught in months. According to Bald (2007), Bear et al. (2020), DEST (2005), and Parker (2019), the reason is that this approach requires beginners to examine and discover letter-sound links using a relatively vast storage of vocabulary.

Furthermore, analytic phonics instruction is indirectly or partially supported by the Top-Down Theory of Reading (Friedman, 2019), which holds that reading occurs naturally in a language-rich environment. Hence, it is often referred to as the top-down phonics instruction approach and is less explicit and direct than synthetic phonics instruction. Therefore, since EFL beginners in China lack access to a rich English language environment before entering primary school, this approach may not be appropriate for application in China among EFL beginners.

The Analogy Phonics Instruction Approach

In addition to the two most widespread phonics instruction approaches, namely synthetic phonics instruction and analytic phonics instruction, a third approach is known as the analogy phonics instruction approach. Although not a mainstream approach because approximately 16 per cent of words in English are not fully regular (Blevins, 2017; ILA, 2019), some teachers use it as a secondary approach in conjunction with the mainstream methods to assist beginners in learning how to decode irregular word sounds (Blevins, 2017).

In this approach, unknown words are identified using phonograms (word chunks or word families) (Blevins, 2017; Mason, 2010). A phonogram is a letter or group of letters representing a sound, syllable, or sequence of sounds without reference to the meaning. This

instruction approach encourages beginners to recognise new words based on parts of words they have previously learnt (DEST, 2005). This approach stresses the larger unit of pronunciation rather than the individual phoneme (Blevins, 2017; Hangensick, 2015). According to Blevins (2017), phonograms have long been utilised in early reading and spelling, and this is regarded as a quick and efficient teaching approach. Additionally, Hangensick (2015) considered the analogy instruction approach to be a pattern decoder and through analogy, beginners might obtain access to more sophisticated phonetic principles. Through analogy, increasingly accurate recognition of certain sight words might be achieved by applying phonograms (Blevins, 2017). However, as with any concept, the approach has detractors.

Blevins (2017) advised caution while using the analogy phonics approach, particularly with beginners. The instructional emphasis should not be solely on phonograms for word identification, as this approach allows beginners only a limited degree of independence in word analysis. Blevins (2017) highlighted the reason for this phenomenon, stating that if beginners are taught to memorise phonograms visually, insufficient attention may be paid to the basic letter-sound relationship. This may result in their inability to identify the letter-sound relationship in another unknown word, as they are unfamiliar with the specific vowel and consonant phonemes. In that circumstance, the beginner's phonemic awareness development may also be delayed (Blevins, 2017). This is because the sub-skill of blending is inextricably linked to phonemic awareness, which, according to the Bottom-Up Theory of Reading Process, should precede chunking during the early reading process (Aldhanhani & Abu-Ayyash, 2020). Here, phonemic awareness refers to the ability to consciously manipulate, mostly while reading, and blend individual phonemes in spoken language (Bear et al., 2020; ILA, 2019). Thus, should only the analogy phonics instruction approach be used for subsequent spelling activities, additional difficulties may arise because this process would not have fully nurtured the learners' phonemic awareness or given sufficient attention to the specific phoneme. Hence, beginners may be unable to identify the letter-sound relationship as they listen to the dictated word. Failure to identify the letter-sound relationship might result in inadequate spelling abilities (Blevins, 2017). In any case, the analogy phonics approach can be used to assist beginners to acquire some sight words or irregular words, rather than regular ones (Bald, 2007; Blevins, 2017). Therefore, it might be considered a complementary approach that could be integrated into the continuum of the systematic and explicit synthetic phonics instruction approach.

Necessities of Phonics Instruction in an EFL Context

The English language is alphabetic, and sound is one of the language's properties (Bear et al., 2020). Since most English vocabulary items are regular and decodable (Blevins, 2017; ILA, 2019), beginners must understand the relationship between sound and print before starting to read (DEST, 2005; DES, 2007; ILA, 2018, 2019; Sprague, 2014; Tipton, 2018). Before the introduction of phonics into mainland China, practically all EFL beginners in the country studied the English sound system via the IPA (Ren, 2020; Zhao, 2019). Some junior middle school and even elementary school students are taught the IPA (International Phonetic Alphabet) to assist them in reading new words and memorising their pronunciation (Ren, 2020). Even at Teaching Colleges, pre-service EFL teachers are instructed to teach the IPA to some extent because the students' books include some IPA-related content (Wang, 2020).

For EFL beginners, the IPA is a system of pronunciation that functions in a similar way to Chinese PinYin (Pan, 2011; Xu, 2002). Learning a completely new sound system is difficult for

beginners, especially when it contains several cryptic and abstract vocal indicators, as well as new pronunciation rules (Long, 2019; Zhao, 2019). Beginners must spend a considerable time remembering the vocal system in order to grasp it. Even if the IPA is taught, beginners also need additional time to practice converting the letters to IPA symbols, sounding them out, and blending them to obtain the letters' inner spoken meaning, which adds another circuitous phase to reading and spelling. This may result in less efficient reading comprehension and reduce their enthusiasm to learn (Zhao, 2019). Additionally, this is not a linear method of learning to read.

The Bottom-Up Theory of Reading Process views reading as a linear process, conceptualising that reading begins with essential visual information in print and progresses sequentially from the most straightforward linguistic units to the more complex ones (Amadi, 2019; Pearson & Kamil, 1979). Beginners must first master the basic sub-skills before they can comprehend a language's more complicated linguistic components. Hence, direct, explicit, and progressive instruction in synthetic phonics may assist language beginners to avoid such issues (Amadi & Offorma, 2019). In comparison to the IPA, phonics uses a single system of signals: letters. Phonics is concerned with the decoding rules governing the pronunciation of letters or spelling patterns (Long, 2019). Beginners can recognise unknown words by adopting fundamental decoding rules (Bear et al., 2020; ILA, 2018; Taylor et al., 2011). When they visualise the letters in words, they are able to verbalise them. When they hear unfamiliar words for the first time, they can spell them (Bald, 2007). As the primary purpose of phonics instruction is to enable beginners to read (Bear et al., 2020; DfES, 2007; DEST, 2005; ILA, 2018; Taylor et al., 2011), phonics instruction can assist them to achieve reading fluency.

Second, beginners learn how to decode words that adhere to these predictable relationships through phonics instruction. Beginners make rapid progress towards acquiring literacy when they master the basic phonics decoding rules. Beginners can learn to read and write more words faster using phonics than they would have done without it. As a result, phonics instruction is critical for early reading instruction. Early success in sounding out words is a powerful predictor of future improvement in decoding (ILA, 2019; Kelly, 2016; Price, 2015) and comprehension (Bear et al., 2020; Blevins, 2017; ILA, 2019; Taylor et al., 2011). Generally, proficient decoders comprehend text more successfully than inept decoders (Price, 2015). As decoding skills improve and an increasing number of words can be recognised visually, less mental energy or capacity is required to decode words, so more mental energy (capacity) (Amadi, 2019; LaBerge & Samuel, 1974) can be devoted to extracting meaning from the text (Bear et al., 2020; ILA, 2019; Taylor et al., 2011; Price, 2015). Early decoding ability is critical since it predicts the later development of reading comprehension (ILA, 2020; Kelly, 2016; Price, 2015).

Third, as outlined by Blevins (2017), possessing phonics knowledge promotes beginners' spelling skills. Reading and spelling are two practices that are inextricably linked and mutually helpful (Bald, 2007; Bear et al., 2020; ILA, 2020; Taylor et al., 2011). Phonics decoding is the process of reading printed words, whereas spelling is encoding a word. In other words, when they are spelling, beginners must match a spelling to each sound heard in the word. Spelling development typically occurs after reading development. Generally, a word may be read before it can be spelt (Bear et al., 2020). The visual attention required by beginners to recognise words is retained in memory. This knowledge is referred to as orthographic knowledge (Bear et al., 2020; ILA, 2017) since it is utilised to spell. On the other hand, spelling involves a stronger recall of visual information than reading and places a considerable demand on memory (Blevins, 2017; ILA, 2020). Blevins (2017); Price (2015) inferred that a

good speller would also be a good reader. Competent spellers do not need to memorise dictionary words; instead, they understand decoding and encoding rules while also recalling sight words (Bald, 2007; ILA, 2020; Price, 2015).

Generally, phonics instruction benefits a diverse range of beginners, including ESL and EFL beginners, as well as those who struggle with reading (Blevins, 2017). As the ILA (2019) stated, this method is beneficial to everybody and harmful to none. Thus, it is necessary to implement phonics instruction with EFL beginner-level readers.

Readiness for Phonics Instruction

Numerous aspects must be considered while implementing phonics instruction efficiently, including knowledge preparation. As the Law of Readiness (Schunk, 2020, Sivakumar & Dhanaraj, 2017) indicated, when learners are prepared to learn, learning takes place and better learning effects may be achieved. Readiness in this context includes two aspects: mental preparation and the preparation of knowledge. This section of the article discusses two assumptions behind phonics instruction. As Blevins (2017), and ILA (2018) noted, alphabet recognition and phonemic awareness are two prerequisites for reading instruction. Beginners are unable to learn to read without a thorough knowledge of the letters (alphabet recognition) and an understanding that words are composed of sounds (phonemic awareness).

Alphabet Recognition

An alphabet is a visual code for oral language representation (ILA, 2018; Lewis & Ellis, 2006). Given that phonics is defined as the systematic relationship between letters and sounds and that English is an alphabetic language, it is critical to begin the learning process with letter recognition (ILA, 2019).

To read in any alphabetic language, language learners must learn the intricacies of that alphabet (Blevins, 2017; Price, 2015). Bear et al (2020) noted that the English spelling system is alphabetical, indicating the relationship between letters and sounds. Thus, learners can match letters, sometimes individually and sometimes in pairs, to construct words that sound from left to right (Bear et al., 2020; ILA, 2018), which is the alphabetic layer in English spelling (Bear et al., 2020; ILA, 2018).

Additionally, the Bottom-Up Theory of Reading Process advocates teaching reading from fundamental units such as the alphabetic principle (Aldhanhani & Abu-Ayyash, 2020). To learn to read, beginners must recognise letters in print, rather than simply knowing their names in upper and lower case (ILA, 2018). For all learners, naming and quickly recognising letters is a vital step towards learning to read (Blevins, 2017; ILA, 2019; Kelly, 2016). Both accuracy and reading speed reveal the extent to which students have mastered letter identities (Blevins, 2017; Kelly, 2016). When beginners become familiar with the alphabet, their curiosity may motivate them to learn more about the language, including letter sounds and how to write them, which can significantly improve their reading and spelling (Bear et al., 2020; Blevins, 2017).

While the ILA (2018); Lyon and Moore (2003) emphasised the importance of knowing letter names as a means of communicating through printed language, the ability to visually recognise the characteristics that differentiate one letter from another also contributes to learning to read (ILA, 2018). According to Clemens et al (2017), letter-name and sound fluency are two distinct techniques. The capacity to name letters is a critical component of the decoding process.

Phonemic Awareness

The smallest sound unit has been defined as the phoneme (Bear et al., 2020). Another aspect affecting the outcome of phonics instruction is phoneme awareness, also known as phonemic awareness (ILA, 2018). Possessing this form of awareness, beginners can identify and modify individual phonemes within a word (Nunn et al., 2019).

Phonemic awareness is a subset of phonological awareness (ILA, 2018; Morton, 2011). According to Nunn et al (2019), there are two levels of phonological awareness: the superficial layer and the deeper layer. The superficial level entails determining the number of syllables in words and identifying general rhymes and alliterations (ILA, 2018; Nunn et al., 2019). The deeper level is phonemic or phoneme awareness, which deals with the smallest sound units (phonemes) (ILA, 2019; Nunn et al., 2019).

Phonemic awareness reflects an ability to manipulate the discrete segments of verbal speech (Nunn et al., 2019). It is regarded as a link between spoken and written language (Bear et al., 2020; Nunn et al., 2019). Although phonemic awareness has no direct link to the relationship between letter sounds and their associated names (phonics), it is fundamental to phonics (ILA, 2019; Nunn et al., 2019; Gillon, 2017; Price, 2015). For example, if EFL beginners are only taught the decoding rules, which identify the letter sounds, but lack phonemic awareness, they may not be able to combine the sounds into a word (Price, 2015). Morton (2011); Litchfield and Kelly (2011); Torgesen et al (2010) noted that language beginners may develop further in learning decoding rules once they have achieved phonemic awareness. Additionally, Litchfield and Kelly (2011) believed that five phonemic strategies might help beginners to develop into proficient readers.

Table.1

Five Phonemic Strategies for Reading

Strategy	Function
1. Matching sounds-words	to identify word onset and rhymes.
2. Isolating sounds	to isolate the phonemes from a word.
3. Blending	to blend individual sounds to form a word. Students might blend two, three, or even four individual sounds into a word.
4. Substitute sounds	to substitute sounds in a word, by which learners could remove a sound from a word and substitute a different sound.
5. Segmenting words	to break a word into its beginning, middle, and end sounds.

As illustrated above, the functions of phonemic awareness are straightforward. Beginners can decode and read unknown words using phonemic awareness in conjunction with the decoding rules. In other words, phonics depends to some extent on phonemic awareness; on the other hand, phonemic awareness is relatively independent of the process of phonics decoding and encoding rules (Morton, 2011; Nunn et al., 2019). Additionally, phonemic awareness precedes the decoding rules for phonics (ILA, 2019), but understanding the alphabetic principle aids in developing phonemic awareness (Morton, 2011).

Nonetheless, Donat (2003) noted that some beginners have limited phonemic awareness, but this can be taught (ILA, 2018). Furthermore, Nunn et al (2019) noted that phonemic awareness can be developed concurrently with synthetic phonics instruction.

Hence, as stated previously, the synthetic phonics instruction approach may be the most appropriate choice for use with EFL beginners. As a result, this could be an excellent way to improve EFL beginners' phonemic awareness. Fortunately, EFL beginners in China are required to learn Chinese PinYin, a kind of alphabetic code, whose sounds they blend in order to obtain the four distinct intonations of each Chinese character (Pan, 2011). This also greatly enhances their phonemic awareness.

Theories relevant to phonics and phonics instruction for EFL beginners

Several theories might be applied to support the implementation of phonics instruction among EFL beginners. These are the Bottom-Up Theory of Reading Process (Amadi, 2019), Thorndike and Skinner's Stimuli-Response (S-R) Theory with Reinforcement, the constructive learning theory, Piaget's Cognitive Development theory, and the Zone of Proximal Development (ZPD), which is a constructivist concept (Schunk, 2020).

The Bottom-Up Theory of Reading Process

In essence, the Bottom-Up Theory of Reading Process is data-driven and occurs throughout the initial stages of reading. This approach views reading as a developmental process. Specifically, it conceptualises that reading begins with essential visual information in print and progresses sequentially from the most straightforward linguistic units to more complex ones (Amadi, 2019; Pearson & Kamil, 1979). In other words, this idea holds that beginners first master the basic sub-skills before they can comprehend a language's more complicated linguistic components. More precisely, the Bottom-Up Theory of Reading Process (Amadi, 2019) supports the learning of English from its alphabet, its letter-sound relationships, and stringing or blending sounds to realise reading at the word level. Through these activities, basic automaticity (Amadi, 2019; LaBerge & Samuel, 1974) of the language is obtained, which means achieving automatic word recognition first before progressing to higher-level linguistic processing, such as reading fluency and comprehension (Amadi, 2019; Blevins, 2017; Holmes, 2009). In this regard, a systematic and explicit synthetic phonics approach is encouraged.

The S-R Theory with Reinforcement

Behaviourism also offers insights into the learning process, asserting that learning is launched by environmental changes (McConnell et al., 2020). In other words, learning occurs as a result of the interaction of stimuli (input) and responses (output) (Morrison et al., 2019).

Thorndike's Trial and Error Theory of Learning

One concept under the umbrella term of the S-R Theory of Reinforcement is Thorndike's Trial and Error Theory of Learning (Schunk, 2020). Several laws of learning are based on the Trial and Error Learning Theory and are therefore relevant to the present study. The first is the Law of Readiness, which states that learning occurs when the learner is ready to learn. The second is the Law of Exercise, which argues that practice makes perfect when it comes to learning. The third is the Law of Effect, whereby a satisfying state is associated with the connection between the stimulus and the reaction; hence, the connection is encouraged and strengthened (Chen, 2011; Islam, 2015; Schunk, 2020).

From the Law of Readiness perspective, among the factors affecting phonics instruction are the two prerequisites for this form of instruction: phonemic awareness and alphabet recognition. Blevins (2017) and the ILA (2019) regarded these as representing readiness for phonics instruction. Conjointly, with an explicit and systematic synthetic phonics process,

language learners' phonemic awareness develops, while their blending skills are improved and internalised to achieve automaticity in word recognition (Bald, 2007; Blevins, 2017; Johnston & Watson, 2007). This procedure is compatible with the Law of Readiness. In other words, the Law of Readiness supports the integration of alphabet recognition instruction into the explicit and systematic synthetic phonics instruction continuum in the proposed instructional guide.

Considering the educational implications of the Law of Exercise in Thorndike's Trial and Error Learning Theory, reading begins with decoding and progresses to comprehension through repeated practice, which serves to embed sight words and high-frequency words in the long-term memory (Alhanhahi & Abu-Ayyash, 2020), thereby promoting the development of reading automaticity. Subsequently, it is natural for EFL beginners to develop automaticity in reading at the word level before progressing to text-level reading (Amadi, 2019; Blevins, 2017). Therefore, from the perspective of the Law of Exercise and the Law of Effect, after phonics decoding rules are introduced, connected text can be introduced to the language beginner to help them to recognise their own decoding and reading strengths, which should enhance their confidence and interest in reading (Blevins, 2017). In other words, the decoding rules are reinforced via reading connected text because when students find they can read text by themselves, they feel satisfied. This sensation may motivate them to read on and read more. Therefore, Thorndike's Trial and Error Theory of Learning has educational implications for implementing phonics instruction with EFL beginners.

Operant Conditioning

Skinner's Operant Conditioning, also known as Instrumental Conditioning (McConnell et al., 2020), provides further theoretical support and educational implications for phonics instruction. Fundamentally, this is a perspective of learning in which the learning process is viewed as a cause-and-effect relationship between an action and its result. Causes and effects are objective and can be both observed and quantified during this process (Driscoll, 2018; McConnell et al., 2020). In this theory, the term "positive reinforcement" refers to a source of information that benefits the individual who receives it and results in a positive shift towards or increase in a particular behaviour (Robinsn, 2018). One educational implication of operant conditioning is that it may shape complex behaviours, which consist of smaller and chained behaviours (Domjan, 2015). According to the Bottom-Up Theory of Reading Process, learning to read through phonics is a complicated activity that gradually entails various sub-skills (behaviours), such as alphabet recognition, decoding rules learning, automaticity, and finally comprehension (Amadi & Offorma, 2019). All these behaviours are interrelated and interdependent. Positive reinforcement can be used to develop each sub-skill. In this regard, the widely accepted Instrumental Conditioning Theory also lends theoretical support to phonics instruction. Meanwhile, another implication of Instrumental Conditioning is that a group's behaviour can be conditioned by reinforcement (Schunk, 2020; Sivakumar & Dhanaraj, 2017). This implication indicates that in EFL context settings, all the beginners in a class can benefit from phonics instruction.

In general, behavioural theories are critical for foreign language learning (Budiman, 2017). For the purposes of this study, the Stimuli-Response Theory with Reinforcement (Islam, 2015; Schunk, 2020) has educational implications for implementing phonics instruction among EFL beginners. First, alphabet recognition instruction should be incorporated into explicit and systematic synthetic phonics instruction. Second, EFL beginners should develop phonemic awareness concurrently with synthetic phonics instruction. Third, phonics

instruction should begin with the simplest sub-skills and knowledge sequentially. Fourth, this would provide sufficient opportunities for practice and encourage the use of decodable text to reinforce the acquired decoding rules to improve reading proficiency.

Constructivist Learning Theory

Constructivism is also applied to learning and teaching (Schunk, 2020). Compared with behaviourism, it refers to how knowledge is constructed and considers that knowledge is formed inside learners rather than imposed from outside stimuli (Schunk, 2020). It highlights the interaction between learners and situations, assuming that learners, behaviours and environments interact reciprocally and that learners are active in developing knowledge for themselves (Schunk, 2020). Therefore, it implies that phonics instruction should be learner-centred and decoding rules must be discovered by learners (Schunk, 2020). In that sense, analytic phonics instruction, also known as the “top-down” or “discover” approach, is encouraged (Blevins, 2017).

In a similar vein, another assumption of constructivism is that teachers should be encouraged to construct learning situations that actively involve learners with the content via the manipulation of materials and interactions (Schunk, 2020). This requires teachers to provide appropriate teaching scenarios within the teaching process that combine previously learnt knowledge with new knowledge. And learners must be encouraged to internalise the new knowledge into their own knowledge system (Sun, 2019). As previously noted, in learner-centred learning, learners can build meaningful connections between acquired knowledge and newly learnt knowledge via learning materials and with the teacher’s guidance (Schunk, 2020; Sun, 2019). In this learning process, teachers play a guiding role as a promoter rather than acting as a sage who instils knowledge into learners.

Therefore, constructivism has several pedagogical implications for phonics instruction in EFL settings. First, learners are encouraged to explore and discover phonics rules in order to establish a set of phonics decoding rules to guide their subsequent word recognition and spelling. This implies the application of the analytic phonics instruction approach. Second, both teachers and learners are supposed to be active in classroom teaching, whereby the teachers are active guides and the learners are active participants. Third, teaching and learning should occur in a positive learning atmosphere, which includes the four essential elements - “situation, cooperation, conversation and meaning construction” - that are conducive to knowledge construction (Schunk, 2020). The last implication is that course design should aim to solve learners’ practical problems, such as using phonics instruction to help learners to enhance their ability to recognise and spell new words without mechanical memorisation.

From the constructivist perspective, through the fundamental phonics decoding rules, EFL learners may be able to take the initiative and establish their own vocabulary knowledge. From that point, they might construct more advanced skills or knowledge in reading and spelling. In that sense, the constructive learning theory also has pedagogical implications for the implementation of phonics instruction.

Piaget’s Theory of Cognitive Development

Piaget’s Cognitive Development Theory is a constructivist concept that focuses on children’s development from the perspective of neuroscience and psychology (Schunk, 2020). According to this theory, children’s cognitive development is divided into four sequential stages: the sensorimotor stage, the preoperational stage, the concrete operational stage, and the formal

operational stage (Schunk, 2020). From the third stage onwards, usually around the age of seven, children can think logically about concrete events, grasp concrete analogies, and perform arithmetical operations. At the fourth stage, when the children are around 12, abstract reasoning is formed. According to this division into stages, EFL beginners are generally at the third stage. This means their cognitive features are no longer egocentric, and they can think logically and make analogies while learning phonics. In other words, they are mentally prepared for learning phonics. As illustrated above, according to the Law of Readiness, one assumption behind effective learning is mental readiness (Schunk, 2020, Sivakumar & Dhanaraj, 2017). Therefore, this theory implies that teachers implement phonics instruction according to learners' cognitive development level to ensure the learners' mental readiness, which is fundamental to learning success (Sivakumar & Dhanaraj, 2017).

The Zone of Proximal Development (ZPD)

Schunk (2020) stated that the ZPD refers to the distance between the actual developmental level, as determined by independent problem-solving, and the level of potential development, as determined via problem-solving under the guidance of more capable teachers. The ZPD represents a student's learning potential under proper instruction (Sarker, 2019; Schunk, 2020). Based on the learners' mental readiness, in the ZPD, teachers and learners cooperate on certain tasks, which the learners could not accomplish independently due to the difficulty level of the tasks. Therefore, this theory indicates that teachers, who are more knowledgeable and/or skilful, share their knowledge or skills to assist task accomplishment among learners who are less informed. During this process, teachers should provide active guided participation while learners bring their own understanding, thereby integrating new knowledge into their acquired knowledge. In other words, firstly, it is encouraged that assessment is given to the learners so that their present knowledge can be determined. Then, at the initial stage of a task, the teachers provide the learners with instructional scaffolding (Schunk, 2020) to help them become more competent. In the later stage, the teachers gradually withdraw the scaffolding when the learners can perform independently. In EFL settings, phonics decoding rules are considered the scaffolding provided by teachers to assist EFL beginners to start manipulating phonemes and thus recognising unfamiliar words. With progress, learners will be able to recognise words independently and progress to text-level reading. However, the provision of scaffolding is based on the assessment.

This conception of the ZPD theory bears some relation to the Bottom-Up Theory of Reading Process under behaviourism, in that instructional support can guide learners through various stages of skills acquisition in the early reading process (Sarker, 2019; Schunk, 2020). Therefore, the ZPD theory has four implications for phonics instruction. The first is to conduct assessment before phonics instruction so that EFL students' present knowledge can be determined and the ZPD estimated. The second is to adopt phonics as a form of scaffolding for early reading success. More specifically, when starting early reading with phonics, the fundamental letter-sound relationships will give EFL beginners the necessary tools (or scaffolding) to acquire word recognition and spelling abilities, which are essential to further reading comprehension and writing. Third, based on EFL beginners' estimated ZPD, teachers should implement phonics instruction by providing instructional guidance as scaffolding to assist the EFL beginners to generalise phonics decoding rules. Learners should practise manipulating phonemes to recognise unknown words before progressing to independent reading. Fourth, to implement phonics instruction, problem-based tasks and collaborative

activities are encouraged. It is also suggested that EFL teachers should select appropriate instructional strategies.

Discussion

The purpose of this article was to clarify several basic notions related to phonics and its implementation, as well as explore the most relevant theories that might be adopted as the theoretical foundations for research on phonics in this field in EFL settings such as China. As mentioned above, phonics is required in the National Curriculum for English Education from Grade One to Grade Nine, when beginners range in age from six to 15. Therefore, Piaget's Theory of Cognitive Development Theory might provide theoretical support for research on EFL beginners across such a wide age range. Furthermore, in China, children start to study English in different school years. For example, in some less developed areas, it is required that English is studied from Grade Three onwards, while in developed areas, English must be learnt from Grade One. In some very remote mountainous areas, English only starts in Grade Seven. This indicates that students of the same age will have reached different levels of English. Thus, the ZPD theory might be a suitable choice for researchers as the theoretical foundation to employ in selecting different instructional strategies accordingly.

Limitations & Conclusion

This article aimed to provide a theoretical view of phonics instruction among EFL beginners in China. To achieve this, first, the definitions of phonics and phonics instruction were reviewed. Then, based on the clarified definitions, the three major phonics instruction approaches that are often seen in EFL settings were analysed. It was determined that a systematic and explicit synthetic phonics instruction approach may be the most appropriate. Then, to highlight the necessity of phonics instruction, the benefits of introducing phonics to EFL beginners and the concept of preparation readiness for phonics instruction were reviewed. Last, the most relevant theories were discussed to provide implications for the implementation of phonics instruction in EFL settings in China. However, this study is based on a fairly preliminary survey of the literature and not all the theories relevant to implementing phonics instruction have been discussed; hence, future work on this topic is required. A search of the CNKI revealed no published theoretical review of phonics and its implementation. It is humbly hoped that this article bridges this gap and stimulates further studies in this field. This would promote the effectiveness of phonics instruction among EFL beginners in China.

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