Exploring the Effectiveness of DMFonF on English Vocabulary and Grammatical Plural Constructions among Malaysian Preschoolers

Rabiah Tul Adawiyah Mohamed Salleh [a]
rabiahtuladawiyah@iium.edu.my
International Islamic University Malaysia, Malaysia

Bruno Di Biase [b]
B.DiBiase@westernsydney.edu.au
Western Sydney University, Australia

Satomi Kawaguchi
S.Kawaguchi@westernsydney.edu.au
Western Sydney University, Australia.

Sharifah Fatin Athira Syed Uzir
athirauzir12@gmail.com
International Islamic University Malaysia, Malaysia

ABSTRACT

This study explores the effectiveness of a novel second language instruction approach in a Malaysian preschool context. This approach is called *Developmentally Moderated Focus-on-Form* (DMFonF), an instructional intervention that integrates a communicative approach to second language teaching with a 'focus on form' and a psycholinguistic theory of second language development, the Processability Theory. In this study, the development of six Malaysian preschool children (mean age =5.6) were investigated in a 10-week longitudinal study. Three children in the group received DMFonF in their English lessons and the other three children received no intervention. Data collection sessions were conducted at three different points over the 10 weeks to evaluate the children's English development. The first data collection point, a pre-test, was conducted physically before the DMFonF intervention to establish the lexical and grammatical baseline of the children's English development. The second data collection was conducted online after the first set of six face-to-face lessons with DMFonF. The third and final data set was also collected online after the completion of the second set of four online lessons. Results show that the children who received DMFonF instruction acquired English lexical and grammatical plural constructions, specifically the plural suffix *-s* and the plural noun phrase agreement (i.e., numeral quantifiers+ noun+ suffix-*s*) as taught in the DMFonF lessons; the children in the control group, however, acquired English lexical items but their grammatical skills did not change. The outcome of this study suggests that DMFonF is effective in triggering grammatical development and in further facilitating the learners' lexical acquisition.

Keywords: DMFonF; Malaysian preschoolers; language development; English vocabulary; English plurals

[a] *Main author*
[b] *Corresponding author*

eISSN: 2550-2131
ISSN: 1675-8021

INTRODUCTION

Malaysia is home to various ethnic communities, such as Malays, Chinese, Indians, and other indigenous communities. Due to the diversity of society, multilingualism is the 'default' linguistic environment in society. *Bahasa Melayu* or Malay language is the national language and other ethnic languages such as Mandarin, Tamil, and many indigenous languages are actively spoken in the respective community (Ahmad, 2005). English is not the first language (L1) of the nation; however, due to Malaysia's postcolonial history and the contemporary role of English in globalisation, the language has been chosen as the nation's Official Second Language (Mahmud & Salehuddin, 2023). Realising the importance of English, the Malaysian government has included English proficiency as one of the aspirations to transform the educational system further. Bilingual proficiency in Malay and English is the Second (Shift 2) of the eleven shifts outlined in the Malaysia Education Blueprint (2013-2025)(Ministry of Education, 2013).

To elevate the standard of English among Malaysian learners, the government has embarked on several educational reforms, spanning from pre- to post-independence (see Gill, 2014 for a comprehensive review). The government has recently taken the initiative to reform English language learning in schools through what is termed as "The Roadmap 2015-2025" (Ministry of Education Malaysia, 2015). The Roadmap is a guide for English language curriculum designers and educators aiming at Malaysian students achieving international English communication standards, which is benchmarked against the Common European Framework of Reference or CEFR. CEFR utilises *action-oriented approach*, which integrates constructivist paradigm and task-based learning (Council of Europe, 2018). However, the CEFR used in the Roadmap 2015-2025 (Ministry of Education Malaysia, 2015) uses Communicative Language Teaching (CLT), specifically in the English classroom context (Savski, 2019).

Preschool education in Malaysia begins when a child reaches the age of 4-6 years old. In Malaysia, the public preschools are divided into several types: a) KEMAS preschools under the Ministry of Rural and Regional Development, which was first established in the 1970s, b) PERPADUAN preschools under the Department of National Unity, also established in the 1970s, and c) Ministry of Education (henceforth MOE) preschools, first set up in 1992. There are also JAIN preschools under the purview of the State Religious Department and *Angkatan Belia Islam Malaysia* (ABIM) preschools under a non-governmental organization (Mustafa & Azman, 2013; Rahmatullah et al., 2021). MOE preschools are further divided into two types; a) national MOE preschools, which use Malay as the medium of instruction b) national-type or vernacular MOE preschools, which use Mandarin or Tamil as the medium of instruction. For the national MOE preschools, Malay and English are equally allocated 600 minutes each week as the medium of instructions. For the national-type/vernacular MOE preschools, equal instruction time is divided between Mandarin or Tamil (400 minutes), Malay (400 minutes) and English (400 minutes). All preschools in Malaysia, both public and private, are required to follow the standard-based curriculum guideline produced by the MOE. The guideline is the *National Preschool Standard-Based Curriculum* (NPSC) issued by MOE first in 2010 and revised in 2016 (Ministry of Education, 2016). There are six components in NPSC: Communications, Spirituality, Attitude and Values, Humanity, Self-Esteem, Physical and Aesthetics, and Science and Technology (Aquino et al., 2017; Nachiappan et al., 2018). NPSC closely follows the shifts outlined in the Malaysia Education blueprint (2013-2025). Proficiency in Malay and English and other languages is part of the Communication component in NPSC.

eISSN: 2550-2131
ISSN: 1675-8021

Upon closer perusal of the NPSC, it is found that the prescribed curriculum guidelines are very general. For example, the learning outcomes specified by the NPSC for English are that children may be able to listen and respond using verbal and non-verbal responses, communicate using simple sentences, read and comprehend simple sentences, and also be able to write words and phrases (Ministry of Education Malaysia, 2016, p.32). Therefore, because of NPSC's genericity, some preschool operators (mainly private ones) were reported to complement the syllabus with other materials provided by various education franchisors available on the market, such as Smart Reader, Q-DEES, Kinderland, and Montessori (Saidi et al., 2013). The situation is further exacerbated by the fact that the Ministry does not supply or indicate any English textbook at the preschool level, and most often, preschool teachers have to design their own English lessons and bring their own materials to teach the children (Md. Zamin et al., 2022). For public preschools budget is limited, and the preschools may not be at liberty to subscribe to privately sourced materials.

There is a dire need to create a carefully thought-out developmental syllabus that is based on empirical linguistic findings and at the same time, incorporate the local contexts. An extensive search of the literature also reveals that there is a limited resource to determine the milestones and normative development for English language acquisition among Malaysian children. Information about English milestone development, which is contextualised to the Malaysian setting and experience, is an essential underpinning for educators, syllabus-designers, researchers and speech-language pathologists (Razak, 2014; Razak et al., 2011; Razak et al., 2016). To understand English acquisition among Malaysian children, their development should be investigated and evaluated on their own merit, which should include the circumstances surrounding the bilingual and multilingual environment the children are in. The language learning environment of Malaysian children should not be compared to traditional monolingual English-dominant environments which have been reported in many child language acquisition studies (Qi & Biase, 2020). It is likewise useful to experiment ways of powering up the current classroom ESL efforts in Malaysia.

Given the above premises, this study aims to address this gap by investigating the development in English as a Second Language (ESL) context among Malaysian preschool children. Our study examines the children's acquisition of English lexical items and plural structures using the *Developmentally Moderated Focus-on-Form (DMFonF)* instruction (Di Biase, 2008). The following research question will guide the paper: How effective is the *Developmentally Moderated Focus-on-Form* (DMFonF) instruction on the acquisition of English lexical and grammatical plural morphology among Malaysian preschool children?

STUDIES ON MALAYSIAN PRESCHOOL CHILDREN

There were several studies conducted on Malaysian preschoolers on their acquisition of English as their L2. One recent study is by Mohamed Salleh et al. (2022) who investigated English lexical acquisition among 99 Malaysian preschoolers who enrolled in a public preschool '*prasekolah'* in the Klang Valley. In the study, the researchers examined the English words produced by the children in a one-off one-to-one elicitation session at the beginning of school year. The finding shows that, only 15 children were able to produce nouns and verbs in English. However, in terms of comprehension, all the children were found to understand the instruction in English although at that point, they were not able to verbally produce words in English. A study by Goh (2019), who investigated the perception of teachers in using English as the language of instruction in Malaysian preschool context, found that preschool teachers showed positive stance about using English in

classroom. The teachers further suggested some form of benchmarks to address the level of proficiency needed for effective use. An earlier study by Omar (2016) illustrates that students seem to grasp the English vocabulary much better when teachers use Malay in a read-aloud technique to explain difficult English words to the preschoolers in the rural areas where exposure to English is limited to the classroom.. San and Abdullah (2014) find that the number of oral vocabulary that Malaysian Chinese preschoolers possessed is a predictor of English language proficiency. Several Malay-English bilingual acquisition studies were conducted by Mohamed Salleh (2017) and Mohamed Salleh et al. (2016, 2019, 2021, 2023). However, these studies were conducted on one child's Malay and English language development, limiting the generalisability of the findings. In addition, the studies were conducted outside the Malaysian educational environment as the child investigated was not in the classroom context. Thus, this study bridges the gap by presenting English L2 lexico-grammatical acquisition among Malaysian preschoolers in an instructional setting. Understanding Malaysian children's language acquisition will yield valuable insight into the lexical and grammatical development between the different competing languages the children are exposed to in the Malaysian context.

PROCESSABILITY THEORY

The developmental psycholinguistic framework that inspires this project is the Processability Theory (henceforth PT) (Bettoni & Di Biase, 2015; Pienemann, 1998, 2005) that has continued to evolve over two and a half decades involving many second languages. According to a recent characterisation by the author, PT's underlying logic is as follows:

> At any stage of development the learner can produce and comprehend only those second language (L2) linguistic forms which the current state of the language processor can handle. It is therefore crucial to understand the architecture of the language processor and the way in which it handles an L2. This enables one to predict the course of development of L2 linguistic forms in language production and comprehension across languages.
>
> (Pienemann & Lenzing 2020, p. 162)

PT views language acquisition as a hierarchically ordered process whereby learners will follow a specific trajectory of acquisition. There are five stages of morphological development in English as a second language according to PT. These stages are shown (bottom to top) in Table 1, which presents the universal sequence of processing procedures (second column) applied to the development of L2 English morphology, exemplified in the third column.

TABLE 1.Developmental Stages Hypothesis for L2 English Morphology
(Di Biase et al., 2015; After Pienemann, 1998; 2005)

Stage	Processing Procedure	English L2 Morphology	Examples
5	S- Procedure	SV agreement: 3rd person sg -s	*Peter loves rice.*
4	VP Pharasal Procedure	AUX + V: Have + V-ed MOD + V	*they have jumped* *you can go* *I am going*
3	NP Phrasal Procedure	Phrasal plural past -ed	*these girls* *three black cats*
2	Category Procedure	plural -s possessive 's	*many cats* *Mary jumped*

		verb -ing	*my brothers working* *Mary's car*
1	Lemma Access	single words formulas	*he eating* *station here* *my name is Pim*

When a learner starts to learn a second language, he/she commences at the *Lemma Access* stage. At this starting point, the learner is able to produce single words and formulaic lexical items in the language. The learner first builds up lexical resources comprising words and fixed expressions such as names of animals, fruits, colours, numbers, greetings, and other fixed expressions frequent in the input. The next stage is the *Category Procedure*, where the learner begins to annotate lexical items. In English, this procedure is materialised when the learner is able to use lexical level morphemes such as progressive *–ing*, plural *–s*, possessive *'s* and past tense *–ed.* The category procedure allows the learner to differentiate main lexical categories such as Nouns and Verbs, and this allows them to construct SV, SVO sentences, which rely on such differentiation. The learner then proceeds to the *Phrasal Stage*; where they are able to unify information within the phrase, e.g., they can merge at the phrasal node the plural feature of a modifier, such as *many* (Number = Plural) with a noun which also contains a plural feature such as *cats,* thus producing phrases with the correct word order and grammatical agreement within the Noun Phrase, as in *many cats, many dogs.* Later he/she is able to use some auxiliaries with lexical verbs within the verb phrase (VP) as in e.g., *can go* and *I'm going*. The final and highest morphological stage is reached when the learner is able to construct morphological agreement across phrase boundaries, i.e., agreement involving unification of information between phrases of a different kind, such as NP and VP to produce Subject-Verb agreement in English, e.g., *Peter loves rice* where the Subject feature information (i.e., Subject Person = 3, Subject Number = Singular) with the present tense features of the verb (i.e., Verb Person = 3, Person Number = Singular). For this study, as the focus is on English plural morphology, we posit that the children undergoing the new DMFonF lessons will reach the NP Phrasal stage.

PT has been widely researched over two decades now in many works on second language acquisition of a wide range of languages such as English (Pienemann, 1998; Zhang & Widyastuti, 2010), Arabic (Mansouri, 2005), Chinese (Zhang, 2005; Gao, 2005), Japanese (Di Biase & Kawaguchi, 2002; Kawaguchi, 2010, 2015), Italian (Di Biase & Bettoni, 2015), Swedish (Pienemann & Hakansson, 1999), and Spanish (Bonilla, 2014) among others. PT has also been applied in many bilingual acquisition studies on children's language development (e.g., Hardini et al., 2019; Kawaguchi & Hardini, 2022; Itani-Adams, 2013; Medojevic, 2014; Mohamed Salleh, 2017; Mohamed Salleh et al. 2016, 2019, 2020,2021,2023). In all these studies, the results unanimously indicate that the trajectory of learners' language development, adults and children alike, follows the stages hypothesised by PT. PT, however, is a theory about learning, not about teaching (Di Biase, 2022). Indeed, according to PT, the developmental trajectory followed by the learner does not change, regardless of the method of instruction used. What may happen though is that instruction may affect the rhythm (i.e., it may accelerate or delay) learning. Due to PT's well-researched and well tried-and-tested universal developmental sequence, the theory was adopted as the theoretical foundation in a lesson designed within the Developmentally Moderated Focus-on-Form (DMFonF) approach, illustrated in the following section.

eISSN: 2550-2131
ISSN: 1675-8021

FOCUS-ON-FORM AND DEVELOPMENTALLY MODERATED FOCUS-ON FORM (DMFONF)

The communicative approach in language learning is a widespread pedagogical approach where the focus is mainly on the communicative aspect of language where the conscious learning aspect is minimised (Di Biase, 2002). This approach, termed as the *Communicative Language Teaching* (CLT, as advocated by Wilkins (1976), Widdowson (1978), Nunan (1991) and others) has a long history in English language teaching in the Malaysian context and it is still the dominant approach for English language teaching policy and practice in the country (Savski, 2019). Regarding instructed learning, Long (1991) contrasts what he called '*focus on formS*' (referring to the sort of structural-grammatical teaching still quite common in language teaching especially in higher level education) with his *focus-on-form* (FonF), an approach which "...overtly draws attention to the linguistic elements as they arise incidentally in lessons whose overriding focus is on meaning or communication" (p.45). This approach refers primarily to *feedback* in the classroom, not syllabus design, which remains primarily communicative and, more recently Task-Based (Long & Robinson, 1998). FonF then operates within the communicative lesson with occasional overt feedback on the grammatical forms. This focusing relies on the incidental emergence of linguistic forms which cause some sort of problem in the ongoing communication in the course of the meaning-based lesson. This applies also to the newer *Task-based* approach (Long, 2015). However, there is no guarantee that the form causing the communicative problem will arise in conjunction with the learner's current developmental stage. Indeed the common gap in all the above approaches, including the older *focus on formS* (structural-grammar lessons), the *communicative* approach, with or without *focus on form*, and the newer *Task-based* approach, all lack a developmental underpinning. As Pienemann (1984) demonstrated experimentally, instruction at the next stage of development of the learner is effective, and instruction beyond one stage of development of the learner is not effective and may even turn out to cause undue delay in learning (see also Mansouri & Duffy, 2005).

The current study uses a new instructional L2 approach that combines Processability Theory (i.e., a second language development theory) and focus-on-form feedback which also includes an explicit developmentally moderated syllabus, built on the basis of the learner's stage of development, and relies on communicative and/or task-based lesson delivery. Di Biase (2002, 2008) refers to this approach as *developmentally moderated focus-on-form instruction* (DMFonF). This approach then is used to underpin the design and the method of teaching English to preschoolers throughout the period of intervention. A key element in this approach is the instructors' syllabus construction, including feedback, on specific developmentally targeted structures during the English lesson, which is generally communicative and task-based. The main difference between Long's (1991) FonF and Di Biase's (2002, 2008) DMFonF is that the latter espouses a proactive role within instruction since it can predict the grammatical development of the learner. So, given that developmental sequences may be hypothesised prior to the lessons by following the PT stages (as shown in Table 1), the instructor would initially establish what stage of development that is achieved by the learner, i.e., by finding out first what the learner's initial baseline, both grammatically and lexically, is. When the instructor learns what the learners' stage of development is, he or she proceeds to design a lesson which focuses on specific developmentally moderated forms to be introduced gradually and communicatively (including through communicative tasks). The combination of focus-on-form instruction and PT's developmental schedules has been shown to lead to efficient L2 learning, evidenced by research conducted by Di Biase (2002, 2008), Hardini et al. (2019), and Kawaguchi and Hardini (2022). Di Biase (2002,

eISSN: 2550-2131
ISSN: 1675-8021

2008), for instance, found that children learning Italian L2 in three different primary schools through a purely communicative approach for two, or even three years, had indeed gained a fairly large vocabulary (mostly nouns, few adjectives though hardly any verbs) but they remained, in grammatical terms, firmly anchored to PT Stage 1 (one word and formula stage). Within 12 weeks with DMFonF all children had developed to stage two and most children achieved stage three. Similar findings emerged in Hardini et al. (2019) and Kawaguchi and Hardini (2022) who experimented DMFonF in English L2 programs in an Indonesian pre-school. Their findings indicate that learners who were exposed to these two elements in L2 learning acquire the targeted grammatical structures faster and more accurately than learners who were exposed to generic communicative methods without DMFonF.

METHODOLOGY

PARTICIPANTS

The participants of the study were six kindergarten children from three public preschools under MOE termed as *prasekolah* (please refer to Mustafa & Azman, 2013 and Rahmatullah et al., 2021, for more information on *Prasekolah*). *Prasekolah* is built annex to the public primary school building with the expenditure borne by MOE. *Prasekolah* caters only to children who come from low-income families in the sub-urban, rural and remote areas (Mustafa & Azman, 2013). The six preschoolers were 2 male and 4 female children, between the age of 5 and 6. They are given the following pseudonyms: Alif (male), Ahmad (male), Tina (female), Zara (female), Diana (female), and Mimi (female). These six preschoolers were the only children who were able to join the study when schools were closed during COVID-19 pandemic in March 2020. As most of the children were from low-income families, only these six children had access to mobile/computer devices together with home internet connection. Before starting the research project, the researchers obtained permission to enter the school premises through *Educational Research Application System (ERAS)* under the governance of MOE as the schools are under MOE. Once the permission by ERAS was issued, the researchers met the principals and the teachers at each school to obtain their consent to allow the preschoolers at the respective schools to participate in the research project. Consent from each parent/caretaker of the preschoolers was also obtained through a formal letter. According to the teachers, all the children speak Malay and understand instructions in the Malay language. The children were reported not to have any type of language impairment.

RESEARCH PROCEDURE

The study was a quasi-experiment to investigate the effectiveness of DMFonF on the acquisition of English lexicon and plurals among Malaysian preschool children. The six children were divided into two groups; three children were in the experimental group (Group A) and the other three were in the control group (Group B). In the experimental group, several trained undergraduate research assistants taught the children English lessons using the DMFonF approach for ten weeks. These undergraduate research assistants were three linguistics students who had been trained by the researchers to teach using DMFonF approach for several weeks prior to the data collection. Group B, on the other hand, continued their English lessons without any intervention. The study commenced on 14th February 2020, initially with 100 preschool children, where the pre-test (T0) was administered face-to-face to establish the children's English baseline. The post-test (T1) was supposed to be administered seven weeks after the instruction period in June 2020. However, due

to the COVID-19 outbreak, which led to prolonged school closure, all research activities were affected and were only resumed in August 2020. Therefore, the DMFonF lessons began in September 2020, when schools reopened for a short duration. However, only six out of ten lessons were conducted in a physical classroom as schools were closed again on 14th October 2020 due to another lockdown. The remaining four DMFonF lessons and post-tests T1 and T2 had to be conducted online via ZOOM. Due to the lockdown, the selection of the participants relied mainly on children who had access to the Internet at home. Out of 100 children who participated in the research in February 2020, only six had access to the Internet when schools were closed. Overall, the duration of the study was five months, which commenced prior to the pandemic in February 2020 for the pretest (T0), followed by the DMFonF intervention which began in September 2020 for ten weeks (6 lessons conducted physically, 4 online), test one (T1, November 2020) and test two (T2, January 2021). All the teaching and testing sessions were audio and video recorded. Once recorded, all the sessions were transcribed using ELAN (Sloetjes & Wittenburg, 2008) for analysis. Figure 2 shows the flow of the research:

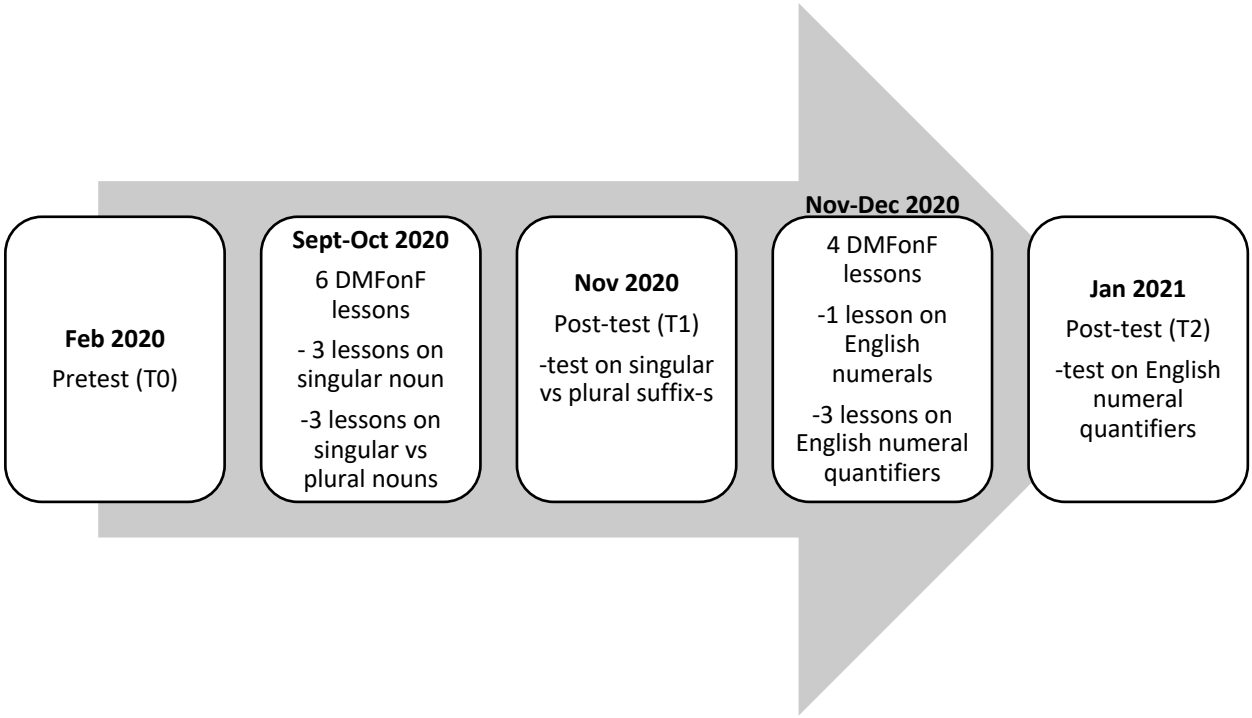

FIGURE 2. Flow of the research from February 2020 to January 2021

DMFonF Lessons

After the pre-test, the children in the experimental group (Group A) received the DMFonF instruction in their English lessons for ten weeks on a weekly basis. Each session was approximately 30-45 minutes. The DMFonF lessons designed by the researchers are shown in Table 2. The lessons were designed following PT developmental stages (refer to Table 1). Those lessons under PT stage *Lemma Access* (see Table 2: Lesson 1, Lesson 3, Lesson 5, Lesson 7) were sessions where the teachers/research assistants introduced English vocabulary to the children based on certain themes e.g., toys, fruits, and animals. Lessons under Category Procedure and Phrasal

Procedure (see Table 2: Lesson 2, Lesson 4, Lesson 6, Lesson 8, Lesson 9, Lesson 10) were sessions where the children were taught the English suffix-s plural and English plural Noun Phrase (NP). Samples of DMFonF lesson plans are in Appendix 1.

TABLE 2. The DMFonF lessons

Lesson & Theme	Target Structure	PT Stage	Platform
Lesson 1, Toys	Singular noun / default form (e.g., *kite, block*)	Lemma Access	Physical (in the classroom)
Lesson 2, Toys	Singular vs Plural; noun + *–s* (e.g., *kites, blocks*)	Category Procedure	Physical (in the classroom)
Lesson 3, Fruits	Singular noun / default form (e.g., *banana, guava*)	Lemma Access	Physical (in the classroom)
Lesson 4, Fruits	Singular vs Plural; noun + *–s* (e.g., *bananas, guavas*)	Category Procedure	Physical (in the classroom)
Lesson 5, Animals	Singular noun / default form (e.g., *cat, rabbit*)	Lemma Access	Physical (in the classroom)
Lesson 6, Animals	Singular vs Plural; noun + *–s* (e.g., *cats, rabbits*)	Category Procedure	Physical (in the classroom)
Lesson 7, Numbers 1-10	English numerals	Lemma Access	Online via Zoom
Lesson 8, Animals	Numeral quantifiers + noun –s (e.g., *two ducks, eight rabbits*)	Phrasal Procedure	Online via Zoom
Lesson 9, Toys	Numeral quantifiers + noun –s (e.g., *three blocks, eight hula hoops*)	Phrasal Procedure	Online via Zoom
Lesson 10, Fruits	Numeral quantifiers + noun –s (e.g., *two apples, four coconuts*)	Phrasal Procedure	Online via Zoom

TESTS AND DATA ANALYSIS

All the tests (T0, T1, T2,) were in the form of picture elicitation tasks, testing the children on their knowledge of English singular and plural items. In child language development research, picture elicitation tasks is much preferred as it will elicit certain grammatical structures (Medojevic, 2014). The use of pictures also facilitate children's participation in the study as child participants might not be comfortable to verbally express their perspectives especially with adults (i.e., the researchers) deemed as strangers (Pyle, 2013).To establish the English singular and plural baseline knowledge of the children, a pre-test (T0) was conducted in which the researchers showed five pictures of singular entities followed by five pictures of the corresponding plural entities. At T1 and T2, 26 pictures (13 singular and 13 plural) were shown to the children in both the experimental and control groups in order to elicit the targeted plural structures. At pretest (T0), the objective was only to determine whether or not the children had knowledge of plurality in English; hence, only 5 pictures were used. At T1 and T2, the pictures used corresponded to the items taught during DMFoNF lessons. The difference between T1 and T2 lies in the use of numerals. In T1, the children were not prompted to use numerals as this was not taught yet (see Figure 2 and Table 2 for the flow and development of the lessons). In T2, the children were prompted to use numeral quantifiers (e.g. *one cat, two cats*). Example of the prompts are in Figure 3:


FIGURE 3. Examples of Prompts Used in The Tests

The singular and plural expressions produced by the participants in the tests were coded based on categories adapted from Mohamed Salleh et al. (2019) , as shown in Table 3.

TABLE 3. Plural Categories Coded In The Participants' Output

Plural Categories	**Definition**	**Example from the corpus**
Default form	The participant used singular noun when a picture of more than one item was shown.	*Ayam 'chicken' monkey*
Suffix *-s*	The participant produced noun with the suffix *-s*.	*Apples, cats*
Numeral quantifier + default form	The participant used a numeral quantifier with the default form of noun to describe plural items. In this category, we found in the corpus that the children used either English-only response, Malay only-response, or English-Malay (mixed) response.	*Five banana,* *Tiga mangga 'three mangoes'* *Seven jambu batu 'seven guavas'*
Numeral quantifier + suffix *-s*	The participant used a numeral quantifier with noun and suffix *-s* to describe plural items. In the corpus, there were no mixed utterances found in this category.	*Two elephants,* *two star fruits*

In determining the acquisition of a grammatical structure, the emergence criteria (Pallotti, 2007) were used in this study instead of accuracy counts. Following the emergence criteria, acquisition does not, in any case, mean that the learner will use that structure consistently. There is usually a time over which production of the structure will be variable. Emergence criteria is different from accuracy criteria, which are arbitrarily set at some percentage of the production of appropriate structure, e.g., at 80% or 60% accurate (Pallotti, 2007, p.362). PT uses emergence criteria to determine whether a structure is acquired, stipulating that there must be lexical and structural variation. In other words, the structure must appear more than once in different structural contexts and with different lexical items. These criteria ensure that formulaic expressions are removed from the acquisitional analysis. For this study, if a child produced at least two utterances containing the English plural -s (e.g. *cats, dogs*) and numeral quantifiers (e.g. *two cats, three dogs*) in its rightful context, the child is considered having acquired the construction.

RESULTS AND DISCUSSION

The following discussion elaborates the findings based on the research question posed earlier**:** How effective is the *Developmentally Moderated Focus-on-Form* (DMFonF) instruction on the acquisition of English lexical and grammatical plural structures among preschool Malaysian children?

The results are divided into two subsections; first the English lexical development between the children in the experimental and the control group, and second, the children's grammatical development, specifically their English noun pluralization, based on the Processability Theory stages.

LEXICAL DEVELOPMENT

Figure 4 shows the total types of English words produced by children in Experimental and Control group at T0, T1 and T2. Word types refers to the number of unique word forms, rather than the total number of words (word tokens) in the data. Having a higher word types indicate that the participant did not use repetitive words in his/her utterances, which also suggests that the participant may possess diverse vocabulary (Hilpinen, 2012).

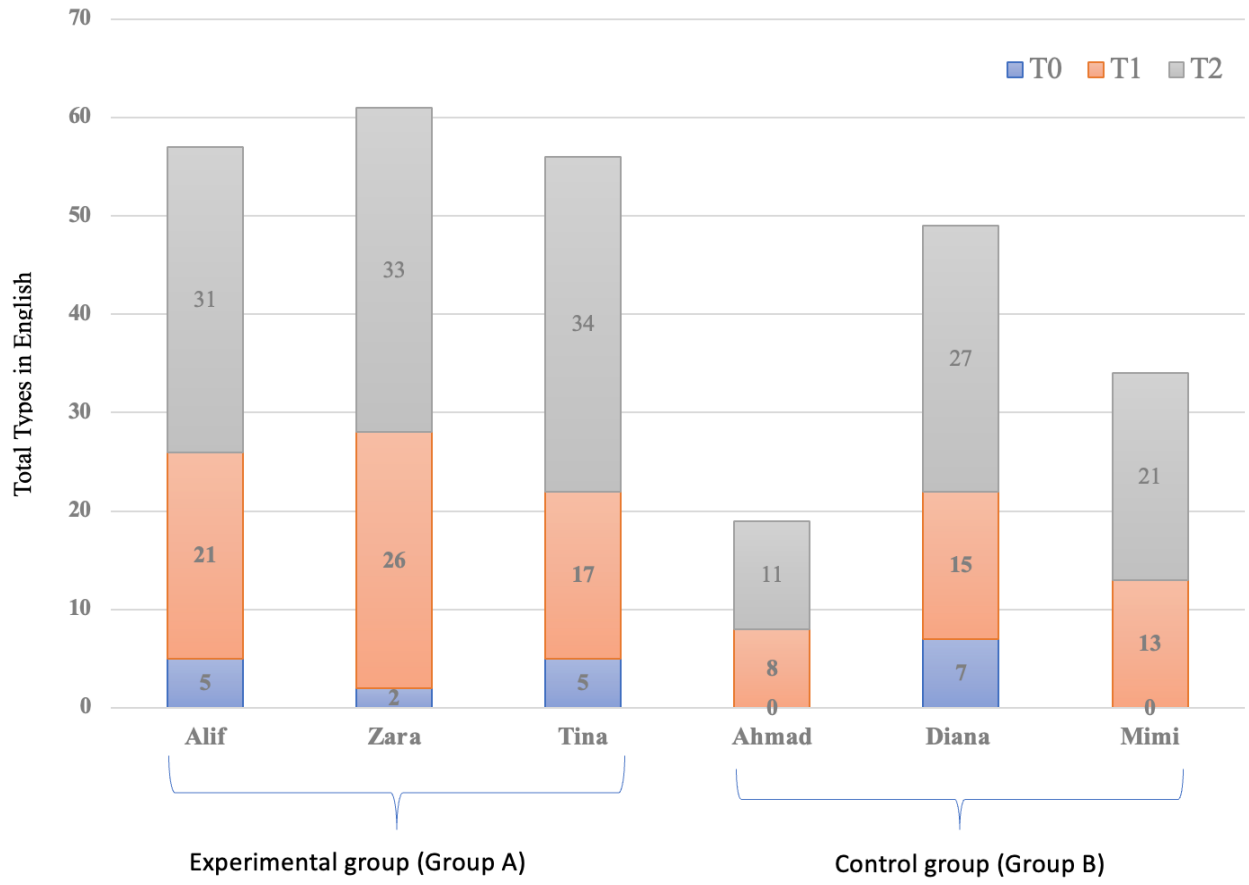

FIGURE 4. Total Types In English from T0 – T2

eISSN: 2550-2131
ISSN: 1675-8021

At T0, children in the experimental group (Group A) were able to produce 2 to 5 types of English words . At T1 and T2, after receiving DMFonF instructions for several weeks, their production of English word types increased exponentially. Table 4 illustrates some of the children's lexical output at T0, T1 and T2.

TABLE 4. Sample Of The Children' S Lexical Output At T0, T1 And T2

Participants		**T0**		**T1**		**T2**	
		Singular	**Plural**	**Singular**	**Plural**	**Singular**	**Plural**
Experimental Group (Group A)	Alif	*monkey*	*chicken*	*boat* *star fruit* *ducks*	*boats* *star fruits* *ducks*	*duck* *one boat* *one lion* *one mangga* *'one mango'*	*four ducks* *two boats* *six lion* *tiga mangga* *'three mangoes'*
	Tina	*cat* *ayam* *'chicken*	*cat* *ayam* *'chicken'*	*boat* *puppet* *elephant* *cat*	*boats* *puppets* *elephant* *cat*	*one puppet* *one elephant* *itik* *'duck'*	*four puppets* *two elephant* *singa* *'lion'*
	Zara	*monkey* *kucing* *'cat'*	*king kong* *lembu* *'cow'*	*boat* *elephant* *star*	*boats* *elephants* *star*	*one duck* *guava* *one lion*	*four ducks* *seven guavas* *six lion*
Control Group (Group B)	Ahmad	*kucing* *'cat'* *ayam* *'chicken'*	*kucing* *'cat'* *ayam* *'chicken'*	*duck* *apple* *kucing* *'cat'* *katak* *'frog'*	*duck* *apple* *kucing* *'cat'* *katak* *'frog'*	*duck* *lemon* *gajah* *'elephant'* *kapal layar* *'yacht'*	*duck* *lemon* *gajah* *'elephant'* *kapal layar* *'yacht'*
	Diana	*monkey* *cat* *ayam* *'chicken'*	*monkey* *cat* *ayam* *'chicken'*	*puppet* *cat* *belimbing besar* *'big star fruit'*	*puppet* *cat* *star fruit*	*one mango* *one rabbit* *star fruit one* *one lion* *jambu batu* *'guava'*	*three mangoes* *eight rabbits* *two star fruit* *six lion* *tujuh jambu batu* *'seven guavas'*
	Mimi	*kucing* *'cat'* *harimau* *'tiger'*	*binatang kucing* *'cat animal'* *binatang harimau* *'tiger animal'*	*elephant* *apple* *itik* *'duck'* *buah jambu* *'guava fruit'*	*elephant* *apple* *itik* *'duck'* *buah jambu* *'guava'*	*monkey* *lion* *rabbits* *layang-layang* *'kite'*	*nine monkey* *lion* *rabbit* *layang-layang* *'kite'*

In English, the singular-plural distinction is a grammatical feature of the language (e.g., the default form of noun (e.g., *cat*) vs. noun + suffix -s (e.g., *cats*). In the corpus, we found that all the children used the default form of nouns in English when describing singular prompts. When describing the plural prompts, there were several strategies used. At T0, all the children used English default form to describe plurals. There were also instances of code-switching to Malay, such as Tina (Group A) who used *ayam* 'chicken' to describe the picture of many chickens. Interestingly, at T0, Mimi (group B) added the word *binatang* 'animal' to the Malay noun, i.e.,

binatang kucing 'animal cat' and *binatang harimau* 'animal tiger' .The lexical item binatang is a noun in Malay and not used as an adjective to modify nouns. Mimi did not use this strategy in T1 and T2 so it is difficult to state whether this is an attempt to pluralise nouns or perhaps this could be her unique individual differences in language development. Existing research has shown that bilingual children exhibit wide variation in their language abilities and have many more potential sources of individual differences (Paradis, 2023). If we compare the result of lexical productions in group A at post-tests (T1 and T2) with results from group B, it is apparent that children from group A were able to produce more English plural-related lexicon after undergoing the DMFonF instructions. The children in Group A were able to produce plurals such as *boats, puppets, four ducks,* and *four puppets* while children in Group B mainly produced English default form to describe plural i.e. *duck, puppet,* and quantifier + default form i.e. *six lion, nine monkey*. This suggests that DMFonF may be able to promote English lexical development not only on noun category per se but also on numerals and quantifiers, which are crucial categories for the plurality of the nouns.

GRAMMATICAL DEVELOPMENT

This subsection presents the results of the grammatical plural development of English, focusing on the children's production of plural -s (e.g., *cat* versus *cats*) and quantifier + noun + plural -s (e.g., *two cats*). The analysis of plural output in Group A is presented first followed by the analysis of Group B. Table 5 below presents the production of Group A at T0, T1 and T2, following the Processability Theory stages. The number with the sign "+" in the table shows the suppliance of the structure in the obligatory context (e.g., *apples, two apples*). The non-suppliance in obligatory context is shown after the sign "-" (e.g., *cat* for plural or *two cat*). The number with the sign ">" shows the over-suppliance of plural marking -s in singular contexts (e.g., *one cats*) and empty cells indicate that no occurrence produced.

TABLE 5. Group A's Plural Development Based on PT Stages

Stage	Structure	Experimental group								
		Alif			Tina			Zara		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
NP Procedure	Quantifier + plural -s			+7 -5			+6 -9			+10 -1
Category Procedure	Plural -s	-3	+9 -1 >2	+2	-2	+3 -9	+1 -5	-1	+11 -2	+1 -1
Lemma	Word level (token/type)	6/5E, 0M	31/21E, 4M	74/31 E, 9M	17/5 E,7 M	39/17E, 8M	77/34E,3 M	14/2E, 8M	40/26 E, 1M	59/33 E, 1M

E = English word M = Malay word

At T0, all three children in this group were not able to mark the plural -*s* on nouns. At this point, they used the English default forms to mark plurality (see Table 4 Sample of the children's lexical output). However, at T1, the children had started to pluralise English nouns with suffix -*s*; Alif supplied 9 plural suffix -*s* on nouns (hence +9) and even oversupplied -*s* on singular item (e.g., *ducks* for one duck, hence >2), Tina supplied 3 plural suffix -*s* (+3) and Zara had 11 plural suffix -*s* (+11). Based on the emergence criterion, the children are considered to have reached PT

Category Procedure stage at T1. At T2, further development is seen as the children were able to produce plural *-s* on nouns (e.g., *bananas*) as well as phrasal plural *-s* which requires agreement within NP (e.g., *four bananas*). At this point, their plural marking within NP was remarkably more robust and this plural agreement even appeared with a higher number of occurrences than its categorial counterpart (Alif had +7 for NP Procedure and +2 for category, Tina had +6 NP, +1 category, Zara had +10, +1 category). At the same time, there were also occurrences of quantifier + default form (e.g., *two cat*) when the children expressed plurals. Such variable use of a grammatical structure is a typical finding in many First Language Acquisition (FLA) and Bilingual First Language Acquisition (BFLA) studies (e.g., Clark & Nikitina, 2009; Hardini et al., 2019; Mohamed Salleh et al., 2016, 2017, 2019, 2020,2021,2023). In these studies, it was found that when children newly acquire a certain grammatical structure, the use of that structure tends to be in a piecemeal manner and it tends to be interchangeably used with a semantically compatible form (i.e., the default form), which is also easier to process. Table 6 below presents Group B's plural development based on PT analysis after undergoing English instructions without DMFonF.

TABLE 6. Group B's Plural Development Based on PT Stages

Stage	**Procedure**	**Control group**								
		Ahmad			**Diana**			**Mimi**		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
NP Procedure	Quantifier + plural -s						***+2**			-2
Category Procedure	Plural -s		-6	-8	-3	-11	-11 -3		-9	-12
Lemma	Word level (token/type)	13/0E, 7M	32/8E, 10M	64/11E, 17M	15/7E, 3M	31/15E, 6M	>2 76/27E, 9M	15/0E, 7M	45/13E ,15M	49/21E,9M

E = English word M = Malay word

As indicated in Table 6, at T0, similar to group A, children in group B also failed to mark plural *-s* on nouns. The empty cells at Ahmad's and Mimi's T0 were due to them describing the plural prompts in Malay (see Table 4 for a sample of their lexical output). At T1, all the children mainly used English default forms to mark plurals, hence the negative signs at T1 Category Procedure (Ahmad -6, Diana -11, Mimi -9). At the final post-test (T2), Ahmad and Mimi mainly produced quantifier + default form (i.e., *two cat, nine monkey*) while Diana produced two occurrences of quantifier + noun+ suffix *-s* (i.e., *three mangoes* and *eight rabbits*). According to Pienemann's (1984) teachability hypothesis, a learner would not be able to 'skip' a stage of acquisition in PT even with instruction. Learners could only learn and produce what they are developmentally 'ready' to learn. So, the question is, how can Diana produce the plural NP agreement without producing the suffix plural *-s* first? The recording session at T2 shows that during the elicitation session, there was a high possibility that some of the family members might have helped Diana respond to the session (as it was conducted online). This is one downside of conducting data collection with young children online - the parents or caretakers might want to 'help' the children during the session, which might compromise the validity of the data. Hence, in the table, we put an asterisk at Diana's T2 NP Procedure slot to indicate some issues with the data retrieved. Due to such circumstances, we consider Diana as not reaching the NP Procedure stage. At T2, Mimi produced one occurrence of *-s* over-suppliance on noun in a singular context (e.g.,

eISSN: 2550-2131
ISSN: 1675-8021

rabbits instead of *rabbit*). Thus, based on the results, we may safely conclude that children in group B did not produce any English morphological plural marking throughout the study.

To further investigate whether the English plural suffix *-s* and plural NP agreement are acquired by the children based on emergence criterion (Di Biase & Kawaguchi, 2002; Pallotti, 2007), we converted the data in Tables 5 and 6 into Tables 7 and 8 of plural marking implicational scaling. In the following tables, "+" signifies that a particular structure was acquired by the child while "-" signifies not acquired.

TABLE 7. Plural Marking Implicational Scaling in Group A

Code	**T0**		**T1**		**T2**	
	Lexical Plural -s	**Phrasal Quantifier + plural -s**	**Lexical Plural -s**	**Phrasal Quantifier + plural -s**	**Lexical Plural -s**	**Phrasal Quantifier +plural -s**
Alif	-	-	+	-	+	+
Tina	-	-	+	-	+	+
Zara	-	-	+	-	+	+

TABLE 8. Plural Marking Implicational Scaling In Group B

Code	**T0**		**T1**		**T2**	
	Lexical Plural -s	**Phrasal Quantifier + plural -s**	**Lexical Plural -s**	**Phrasal Quantifier + plural -s**	**Lexical Plural -s**	**Phrasal Quantifier +plural -s**
Ahmad	-	-	-	-	-	-
Mimi	-	-	-	-	-	-
Diana	-	-	-	-	-	-

Tables 7 and 8 show that at T0, children in both groups had not reached the English lexical stage (i.e., they were at *lemma* or single words stage in PT). At the first post-test (T1), all children in Group A had attained the lexical stage but children in Group B had yet to reach the particular stage. At the final post-test (T2), children in Group A reached phrasal plural stage but children in group B still remained at the single word stage. To summarise, based on the results, DMFonF instruction appears to be an effective approach not only in assisting Malaysian preschool children to develop their grammatical skills in the L2, but also in promoting the children's L2 vocabulary acquisition. Post-test (T1 and T2) results of children in the experimental group show that they managed to learn the targeted structures quickly. These findings further corroborated the findings from other earlier DMFonF studies; for example, studies by Ahmad Sabri et al. (2021) on Malaysian children with autism acquiring English in a second language context; Hardini et al. (2019) and Kawaguchi and Hardini (2022) on Indonesian preschool children learning English as their foreign language (FL); and Di Biase (2002, 2008) on primary school children in Australia learning Italian as their L2. However, it should be noted that the findings here must be treated with caution as the children in this study were taught in a very small class and also in several online platforms (via Zoom). It is possible that there would be different results if DMFonF is used in a big class of learners in a face-to-face environment.

CONCLUSION

This study investigates the acquisition of English lexicon and plural grammatical structures among six Malaysian preschool children using DMFonF, which has not been tried in the Malaysian context yet. Our results show that in terms of lexical development, after ten weeks of the DMFonF instruction, children in Group A produced 162 English word types, which include nouns on various themes and numeral quantifiers. For grammatical development, children in Group A were able to develop from the single word stage to the lexical stage and phrasal stage. Children in the control group (Group B) on the other hand, produced only 92 English word types and and their grammatical development remained at the single word stage throughout the study. It can be concluded that since the acquisition criteria were satisfied, the DMFonF instruction had a positive effect on Group A's plural development as well as their vocabulary.

The findings also shed light on how children who are exposed to more than one languages resorted to only one language to fill the lexical gap. The children in this study used Malay when they were not able to describe the items in English. To further confirm this finding, however, we suggest future research to use DMFonF with a bigger sample size including children from diverse Malaysian linguistic communities and in face-to-face classroom environments. This may enable the pattern of acquisition to be more clearly discerned as well as throwing some light on the ways Malaysian multilinguality contributes to the development of English. The findings of the present study are limited by the small sample size due to the COVID-19 pandemic; and may not be generalised. However, as this is the first study to use DMFonF on a Malaysian preschool population, the results may form the basis of understanding the development and the processing of English as an L2 among children in Malaysia.

ACKNOWLEDGEMENTS

The original research leading to the development of DMFonF was funded by a three-year grant (1999-2001) AB1405_1693 from the Australian Research Council and Industry partner CoAsIt, a provider of Italian language education services in Sydney, Australia. This work on Malaysian children was supported by the Fundamental Research Grant Scheme, Ministry of Higher Education, Malaysia [Grant Number FRGS/1/2019/SSI01/UIAM/03/1].

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APPENDIX

Sample of DMFonF Lesson Plan

LESSON PLAN 3
FRUITS
Learning Objectives : The children will :

1. Learn the English vocabulary for a variety of fruits

Time: 30-45 minutes
Target vocabulary: ***apple, banana, coconut, dragon fruit, guava, mango, papaya, star fruit, watermelon.***
Materials: Flashcards of the fruits and box (Fruit Fetch game)
Medium of instruction: Malay/English

Activities:

1. The teacher introduces the name of the fruits in English, using the flashcards.
2. The teacher asks the children to repeat the names of the fruits aloud.
3. Play "Fruit Fetch": the teacher says "(child's name), give me an apple". Use the flashcards and ask the child to find the fruit and put it into a box.
4. Do this for each student in the class.

Notes :

1. This lesson helps to build up fruit vocabulary in English.
2. The lesson parallels with the Processability Theory Lemma Access stage- as new beginners of English, the children must learn the vocabulary before proceeding to the grammatical elements.

LESSON PLAN 4
FRUITS (Singular vs Plural)
Learning Objectives: The children will :

1. Learn the singular and plural forms of 9 fruits by adding the suffix -s (plural allomorph /s/ and /z/).

Time : 30-45 minutes
Target vocabulary : ***apple vs apples (/z/), banana vs bananas (/z/), coconut vs coconuts (/s/), dragon fruit vs dragon fruits (/s/) , guava vs guavas (/z/), mango vs mangoes (/z/), papaya vs papayas (/z/) , star fruit vs star fruits (/z/), watermelon vs watermelons (/z/).***
Materials : Flashcards of the fruits and box (Fruit Fetch game)
Medium of instruction : Malay/English

Activities:

1. The teacher starts the lesson by showing the flashcards of each fruit, singular and plural, side by side.
2. Demonstrate the meanings using flashcards, e.g., *apple vs apples, banana vs bananas*. Can they hear the 's' at the end of these words?
3. Review each of the flashcards by reading them aloud together.

eISSN: 2550-2131
ISSN: 1675-8021

4. Play "Fruit Fetch" again, this time include the plural entities: the teacher says "(child's name), give me an apple/apples". Use the flashcards and ask the child to find the fruit/fruits and put them into a box.
5. Do this for each student in the class.

Notes :

1. The lesson parallels the Processability Theory Procedure stage: at this stage, learners will learn to annotate the lexical items they have learned before (the singular item) and add -s to the nouns to indicate plurality.

LESSON PLAN 10
FRUITS
Learning Objectives: The children will :

1. Learn numerals in English, from 1-10.
2. Learn to combine numeral quantifiers with the plural suffix -s on nouns (e.g., *one apple, two bananas*).

Time: 30-45 minutes
Target vocabulary: numeral + fruit vocabulary + s *(two apples, three bananas, four coconuts, five dragon fruits, six guavas, seven mangoes, eight papayas, nine star fruits, ten watermelons*).
Materials: Fruit flashcards and figurines.
Medium of Instruction: Malay/English

Activities:

1. The teacher starts the lesson by teaching numbers in English (1-10).
2. The teacher demonstrates by using flashcards (show the picture of *one apple* vs *two apples*). Can they hear the 's' at the end of the plural nouns?
3. Review all the flashcards by saying them aloud with the children.
4. Play **Multiple Objects Find**. Prepare a bag load of objects/flashcards (fruit figurines or flashcards.). Make sure that most of the fruits are more than one. In class, throw all of the objects/flashcards around the room and ask the children to go and give the teacher various items, based on the teacher's instruction e.g., Teacher: *get me an apple, get me three coconuts, get me four bananas*, etc.)

Notes :

1. This lesson plan is designed to build on the knowledge of singular and plural and help the children to use appropriate numeral quantifiers with the nouns.
2. This lesson correlates with the Processability Theory Phrasal Category Stage; at this stage, learners are required to combine the noun and the quantifier (in this session, the numeral quantifier in the Noun Phrase (NP).

ABOUT THE AUTHORS

Rabiah Tul Adawiyah Mohamed Salleh is Assistant Professor at the Department of English Language and Literature, International Islamic University Malaysia (IIUM), where she teaches Psycholinguistics. She is also Coordinator of Child Bilingualism Centre, a research centre under the auspices of AbdulHamid AbuSulayman Kulliyyah of Islamic Revealed Knowledge and Human Sciences (AHAS KIRKHS), IIUM.

Bruno Di Biase is Associate Professor at the School of Humanities and Communication Arts/Bilingualism Research Lab, Western Sydney University, Australia. His research and publications relate mostly to bilingualism and second language acquisition with a focus on Processability Theory.

Satomi Kawaguchi is Associate Professor at the School of Humanities and Communication Arts/Bilingualism Research Lab, Western Sydney University, Australia. Her academic interests range from second language acquisition, with a particular focus on Japanese and English, to psycholinguistics, Japanese linguistics, and the practical application of SLA research in teaching methodologies.

Sharifah Fatin Athira Syed Uzir completed her Master's degree in Applied Linguistics at the Department of English Language and Literature, AHAS KIRKHS, IIUM. Her thesis focused on a group case study on the development of English among Malaysian children using the DMFonF approach.

eISSN: 2550-2131
ISSN: 1675-8021