Malay Numeral Classifier Usage In Caretaker-child Talk

Khazriyati Salehuddin
khazdin@ukm.my
School of Language Studies & Linguistics
Faculty of Social Sciences and Humanities
Universiti Kebangsaan Malaysia

Heather Winskel
heather.winskel@scu.edu.au
School of Health and Human Sciences
Coffs Harbour Campus
Southern Cross University
Australia

Abstract

To the nativists and cognitivists, input plays a minor role in language acquisition; however, more recent studies have shown that to a certain extent, the frequency and usage of lexical terms in children's linguistic environment do play a role in language development, especially when they involve interaction. This paper presents an investigation on the usage of eight Malay shape-based numeral classifiers in eleven caretaker-child interactions. A semi-structured elicited procedure was designed to stimulate the caretaker and child to interact with each other in a naturalistic setting. Since Malay numeral classifiers are most prominently observed in counting activities, an interactive game was designed to identify what numeral classifiers caretakers would choose to talk about more in a situation where all numeral classifiers had the same chance to be talked about. Caretakers' usage of numeral classifiers and their reactions to children's usage of numeral classifiers are highlighted in this paper. Results indicate that Malay numeral classifier usage is not pervasive in Malay caretaker-child interactions. They suggest that the degree of obligatoriness of numeral classifiers in the Malay grammar plays a role in caretakers' numeral classifier usage and their reactions to children's usage.

Keywords: caretaker, categorisation, children, input, language acquisition.

Introduction

"Numeral classifiers" is a common linguistic manifestation of the conceptual categorisation (Craig, 1986) in most Sino-Tibetan, Atlantic-Congo, and Austronesian languages (e.g., Chinese, Swahili, and Malay respectively) (Adams & Conklin, 1973; Aikhenvald, 2003; Allan, 1977; Craig, 1986; Croft, 1994; Goral, 1978; Kiyomi, 1992). As a syntactic-semantic category, numeral classifiers syntactically occur in a noun phrase and co-exit with a noun and a numeral (Richards, Platt, & Weber, 1985). Semantically, numeral classifiers give the language users of particular cultures information about the

physical, conceptual, and functional properties of particular objects. Numeral classifiers are commonly used in counting activities via the use of one common label for different objects (Mervis & Rosch, 1981) to acknowledge the membership of a particular referent in a particular category. For example, the counting of different Malay objects with different names (e.g., "*kerusi*" for *chairs,* "*buku"* for *books*, and "*kotak*" for *boxes*) are done using the same numeral classifier (i.e., *buah*) to indicate that these different objects are members of the same category (e.g., "*tiga buah kerusi"* [three NumCl chairs], "*tiga buah buku*" [three NumCl books], and "*tiga buah kotak*" [three NumCl boxes]).

Malay numeral classifiers are often considered as complicated by the Malay language users because of the high degree of arbitrariness that is seemingly manifested in the form of "exceptions" to the categorisation rule (Dirin, 2000; Othman, 2004). On the surface, the categorisation of objects using the Malay numeral classifiers appears to be random and "semantically non-transparent" (Omar, 1972, p. 89). As a result, it is quite difficult to reason why "boxes" are classified with a numeral classifier that is literally translated as "fruit" (*buah*) as in "*tiga buah kotak"* (three *fruit box), and why fruits, on the other hand, are classified with the numeral classifier that is literally translated as "seed" (*biji*), as in "*tiga biji epal*" (three *seed apple). Despite being superficially "semantically non-transparent", to a great extent, the classification of objects in the Malay numeral classifier system at the deep structure is indeed not random (Salehuddin & Winskel, 2008). To illustrate, the classification of shape-based numeral classifiers is done systematically based on the dimensionality of the objects (Allan, 1977). Long objects are classified as one-dimensional (1D); flat objects are classified as two-dimensional (2D), whereas rounded or polyhedral objects are classified as three-dimensional (3D). Like in most numeral classifier languages, Malay 1D and 2D objects are further classified based on their rigidity (+rigid, or –rigid). However, although in most numeral classifier languages, 3D objects are further classified based on whether they are big or small, in the Malay language, the classification of 3D objects are done based on whether they are big, medium, small, or fine (Salehuddin & Winskel, 2008). For example, a rope is classified with the numeral classifier *utas* [1D:-rigid] because it is a long (1D) and flexible (-rigid) object. A fruit, on the other hand, is classified with the numeral classifier *biji* [3D: small] because it is rounded and is relatively small in size.

As presented above, the classification of Malay numeral classifier is very systematic; yet the classification is perceived as arbitrary due to the homophonous and homonymous nature between some numeral classifiers and some objects (e.g., *biji, buah,* and *batang*) (Salehuddin, Winskel, & Marlyna, 2011). Some of the labels used in numeral classifiers appear to be homophonous and homonymous because of the similarity between the numeral classifier label and the object. For example, as a numeral classifier, *biji* denotes a label to categorise small, rounded (3D: small) objects; whereas as an object, *biji* refers to "seeds". Despite being systematic, the classification of objects in the Malay numeral classifier system remains complex because of the mixed semantic criteria in classifying members of a given category. As illustrated above, in classifying objects that are rounded or polyhedral, one would have to also consider whether the objects are big, medium in size, small, or fine (Salehuddin & Winskel, 2008).

Although numeral classifiers performs an essential role in the Malay syntax (e.g., Dirin, 2000; Omar, 1972; Othman, 2004), to many average Malay language users today, the usage of numeral classifiers is seen as unnecessary. This is because, to many language users, numeral classifiers merely "echo" the semantic features of the head noun (Hopper, 1986, p. 310). As a result, for reasons of economy (*cf.* Grice's *Maxim of Quantity*), a majority of Malay speakers tend to omit numeral classifiers, as in "*tiga kanak-kanak*" (three children) and "*tiga arnab*" (three rabbits) (Salehuddin & Winskel, 2009a). However, the presence of numeral classifiers in the Malay written discourse is necessary because numeral classifiers not only highlight the semantic features of the head noun, but they also perform several pragmatic functions, namely, as references and indications of definiteness (Salehuddin, Winskel, & Marlyna, 2011). Although numeral classifiers can also be omitted in any Malay discourse; its omission in the written discourse should not be unsystematic. In fact, numeral classifiers should only be deleted from the discourse when there is a need to highlight the sense of indefiniteness of a particular noun when the noun is being referred. Unfortunately, today's average Malay language users appear to omit numeral classifiers unsystematically, without knowing whether or not they are allowed to do so. As a result, numeral classifiers are frequently being incorrectly used in the modern day linguistic environment and are frequently being randomly omitted in the Malay language when in fact their presence is necessary. Regrettably, incorrect usage and random omission of numeral classifiers by Malay language users themselves may result in a lesser exposure to numeral classifier usage, or input, in the Malay children's linguistic environment.

Input has long been a topic of discussion in language acquisition. However, the role of input in language acquisition differs according to the different learning theories. Input was considered as playing a very crucial function in language acquisition at the height of the Behaviourist Learning Theory in the 1950s. At that particular point of time, language was merely considered as a product of human behaviour that results from a system of habits. To the behaviourists, the only way to learn language was through imitation of habits that are available in one's environment. A pendulum shift, however, took place towards the end of the 1950s. The behaviourist learning theory was criticised (Chomsky, 1959) as children were observed not to produce the kind of speech that is available in adults' production. Instead, children were found to, for example, overgeneralise past tense rules to irregular verbs (e.g., *puted, cuted*) and refused to correct their incorrect oral productions in spite of adults correcting their incorrect utterances explicitly (McNeill, 1966). Because of this, contrary to the behaviourists' view of language learning who sees language learners as imitators of language in the 1950s, in the 1960s, input was later perceived as playing an insignificant role in language acquisition by the nativists and cognitivists, who viewed language learners as "creators of language systems" (Corder, 1967).

However, studies conducted more recently indicate that frequency and usage of lexical terms in children's linguistic environment plays a role in language development (e.g., Goodman, Dale, & Li, 2008; Tare, Shatz, & Gilbertson, 2008), especially when they involve interaction (Ellis, 1984). Interaction is seen as playing a more essential role that Carroll (2004, p. 237) argues that "speaking correctly was the consequence of being raised in an environment in which correct language models were present and in which

children's speech errors were corrected". Children's interaction with adults gives children a possibility to get information from the adults about the form, the syntax, the semantics, and the pragmatic functions of particular linguistic items (Clark, 2003). Some studies propose that children learn lexical items earlier when the lexical items are produced more frequently in speech directed to them (e.g., Gallaway & Richards, 1994; Snow & Ferguson, 1977). With regard to numeral classifier acquisition, children's linguistic environment is also considered as an important factor in its development (Matsumoto, 1985; Yamamoto, 2005). In Japanese, for example, higher frequency numeral classifiers in both speech and written texts (e.g. *-tsu, -ko, -hiki,* and *–dai*) were found to emerge "maturationally" earlier than lower frequency numeral classifiers (Yamamoto, 2005, p.119).

Studies on Malay shape-based numeral classifier acquisition found that the production and comprehension of Malay shape-based numeral classifiers increase with age (Salehuddin & Winskel, 2009a, 2009b). It was also found that the classification of typical exemplars of numeral classifiers is done more correctly with faster reaction times than the classification of atypical exemplars (Salehuddin & Winskel, 2011). It was suggested that the order of Malay numeral classifier acquisition, to a certain extent, correlates with the frequently occurring shape-based numeral classifiers in the Malay written discourse (Salehuddin & Winskel, 2009a). This is because, children acquire the more frequently occurring numeral classifiers in the Malay written discourse earlier than the less frequently occurring numeral classifiers. The question is, while in the written discourse, Malay numeral classifier usage is quite pervasively omitted by its language users (Salehuddin, Winskel & Marlyna, 2011), can the same be said about Malay numeral classifier usage in the Malay spoken discourse?

The current study was conducted to examine the use of eight Malay shape-based numeral classifiers, namely, *batang* [1D: +rigid], *utas* [1D: -rigid], *keping* [2D: +rigid], *helai* [2D: -rigid], *buah* [3D: big], *ketul* [3D: medium], *biji* [3D: small], and *butir* [3D: fine] in the Malay spoken discourse. Specifically, this study was conducted to identify the numeral classifiers and their frequency in caretakers' speech and investigate if the frequency of numeral classifier usage in children's environment plays a role in numeral classifier acquisition among Malay children.

Method

One of the best methods to investigate the role of input in acquisition is through 'dyadic adult-child play setting' (Scott, 1988, p.51). However, with regard to the Malay numeral classifiers, investigating their usage via 'dyadic adult-child play setting' can be problematic because Malay numeral classifiers are most predominantly observed in enumerating processes – an act that does not occur frequently in natural settings. Because of this, a semi-structured elicitation procedure in the form of a game was used to examine numeral classifier usage in caretaker-child interactions. "*Putar, Cari, & Kira"* ("Spin, Seek, & Count") was a game designed to encourage a caretaker and a child to interact with each other in a naturalistic setting, playing a counting game by spinning (*putar*) a spinning wheel, seeking (*cari*) the object that is revealed by the spinning wheel, and counting *(kira*) the objects in a picture book.

Participants

Thirty-five invitation letters were distributed to adults, who had 3- to 5-year-old children living in the same house with them, to participate in the "*Putar, Cari, & Kira*" game. However, out of this number, only 11 caretakers responded to the invitation and agreed to participate with their child/grandson/nephew in the game. They were all from the same vicinity with the participants in the two experiments conducted by Salehuddin and Winskel (2009a, 2009b). The participants were all native speakers of Malay who spoke standard Malay as their first language and were from middle SES. The caretakers were between 22 and 56 years old (mean = 37.55 years old) whereas the children were between 4:4 and 5:9 (mean = 5.14 years old). Only three of the caretakers were male and among the children five were female. The caretaker-child relationship varied (as described in Table 1); yet, all caretakers played a prominent or central role in bringing up the children. To illustrate, the grandson in Pair 2 lived with the grandmother because his parents worked in another state. The nephew in Pair 11, on the other hand, lived in the same house with his uncle, and this uncle-nephew pair both spent a lot of time together.

Table 1: Description of participants in the "Putar, Cari, & Kira" Game

	Caretaker		**Child**		**Relationship**
	Year	Gender	(Year;Month)	Gender	
Pair 1	38	F	5;7	M	mother-son
Pair 2	56	F	4;7	M	grandmother-grandson
Pair 3	42	F	5;6	M	mother-son
Pair 4	38	F	4;7	M	mother-son
Pair 5	42	F	5;9	F	mother-daughter
Pair 6	47	F	5;6	M	mother-son
Pair 7	26	F	5;8	F	mother-daughter
Pair 8	28	M	5;0	F	father-daughter
Pair 9	29	M	4;4	F	father-daughter
Pair 10	45	F	5;0	F	mother-daughter
Pair 11	22	M	5;0	M	uncle-nephew

Stimuli

"*Putar, Cari, & Kira*" consisted of a ten-page A3-size picture-book and a set of ten windowed spinning wheels. The picture book comprised of pictures of five settings that are familiar to children. The five different settings that are printed on glossy photo paper included the setting of a bedroom (labelled "AB"), a dining room (labelled "CD"), a kitchen (labelled "EF"), a highway (labelled "GH"), and a park (labelled "YZ"). Pictures of objects that are very typical, typical, moderate, atypical, and very atypical exemplars of Malay shape-based numeral classifiers as used in Salehuddin and Winskel (2009a, 2009b) were also printed on glossy photo paper. These pictures were later cut into picture cut-outs.

Pictures of exemplars of the same numeral classifier from all five typicality types mentioned earlier were glued on one same spinning wheel. These pictures were positioned at an angle of 72˚ apart to make sure that the distance between one picture and the other was evenly distributed. Since there were 10 numeral classifiers tested in this experiment, there were altogether 10 spinning wheels used in the game. Each one of the spinning wheels was windowed with a 72˚ angle so that at any one time, each spinning wheel would reveal only the picture of one object (Figure 1). Each spinning wheel was labelled with the letter "A" (for *buah* [3D: big] exemplars), "B" (*utas* [1D: -rigid] exemplars), "C" (*keping* [2D: +rigid] exemplars), "D" (*ketul* [3D: medium] exemplars), "E" (*helai* [2D: -rigid] exemplars), "F" (*butir* [3D: fine] exemplars), "G" (*biji* [3D: small] exemplar), "H" (*batang* [1D: +rigid] exemplars), "Y" (*ekor* [animate: animal] exemplars), and "Z" (*orang* [animate: human]). The labels were positioned in the middle of the respective spinning wheels (Figure 1).

Figure 1: The spinning wheels for *ekor* (wheel labelled "Y") and *orang* ("Z").

* The window on each spinning wheel showed only one picture at a time. All pictures on the spinning wheel were labelled with their respective object names.

The rest of the picture cut-outs of the objects were later glued in the picture-book on five different picture settings. The number of objects of each exemplar varied between two and four to stimulate counting. Exemplars of *buah* [3D: big] and *utas* [1D: -rigid] were glued on the picture marked "AB" (bedroom setting), *keping* [2D: +rigid] and *ketul* [3D: medium] on "CD" (dining room setting), *helai* [2D: -rigid] and *butir* [3D: fine] on "EF" (kitchen setting), *biji* [3D: small] and *batang* [1D: +rigid] on "GH" (highway setting), and *ekor* [animate: animal] and *orang* [animate: human] on "YZ" (park setting) (Figure 2). The various picture settings were used to contextualise the existence of the objects, and hence, stimulate conversation between each caretaker and child.

Figure 2: The A3-size picture book showing the setting of a park to contextualise the exemplars of numeral classifiers.

* "YZ" was labeled at the top right-hand corner of the book. Pictures of the exemplars were glued on the setting to create a 3D effect.

Procedure

All caretakers were first informed that the objective of the task was to investigate children's development. Each of them was told to interact with the child in as natural or normal a way as possible. The phrase "*penjodoh bilangan*" (numeral classifier) was never mentioned by the researcher in the process of instructing the caretakers what to do or what was expected from them. Yet, in demonstrating the task/game to the caretakers, numeral classifiers were used when counting the objects, for example, *satu ekor ikan, dua ekor ikan, tiga ekor ikan* (one NumCl fish, two NumCl fish, three NumCl fish) and *seorang lelaki dewasa, dua orang lelaki dewasa* (one NumCl man, two NumCl man). The interaction between each caretaker and child was audio recorded and observed by the researcher. A clip-on microphone was attached to the child's collar throughout the session.

Practice trial

Caretakers were first shown how to play the "*Putar, Cari, & Kira*" game with the children using of the "YZ" picture setting (a park) (Figure 2) and the "Y" and "Z" spinning wheels (exemplars of *ekor* [animate: animal] and *orang* [animate: human]) (Figure 1) as samples. Caretakers were told that for each of the picture settings they played, the letters printed on the top right-hand corner of the picture-book must be matched with the letters that were printed at the centre of the spinning wheels; for example, the "YZ" picture setting must be played with only "Y" and "Z" spinning wheels. To demonstrate, the researcher first spun (*putar*) the spinning wheel and when the wheel stopped at a particular picture (e.g., a fish), the researcher sought (*cari*) the picture cut-out of a fish on page "YZ" and then counted (*kira*) the number of picture cut-

outs of a fish on page "YZ" (e.g., *seekor ikan, dua ekor ikan*). The researcher then handed the spinning wheel to the caretaker and asked the caretaker to repeat the procedure. Both researcher and caretaker took turns to do the spinning, seeking, and counting until all pictures on both "Y" and "Z" spinning wheels were accounted for. When the caretakers had fully understood the procedure they were told that they could now play the game with the child.

The game

The experimental session followed the same procedure administered in the practice trial. However, during the experimental session, the game was played by the caretaker and child. Each one of the caretakers and children took turns to spin the "A" through "H" spinning wheels to seek and count the objects on the "AB" through "GH" pages. Each caretaker-child pair completed the game within 12 and 22 minutes (i.e., an average 17.5 minutes per pair).

Figure 3: A caretaker-child pair interacting while playing the "*Putar, Cari, & Kira"*.

* The child is spinning the windowed spinning wheel with the assistance of his caretaker.

Results

Five of the eleven caretakers who participated in this experiment used at least one numeral classifier while playing the game; two caretakers used all six out of the eight numeral classifiers tested, either when counting the objects or when prompting the children to count. The *butir* [3D: fine] numeral classifier was the only numeral classifier that was not produced by any of the caretakers in their interactions. Out of the eight numeral classifiers tested, *helai* [2D: -rigid] was the most frequently-produced numeral classifier (12 times) followed by *biji* [3D: small] (8 times), and *batang* [1D: +rigid] (8 times) (Table 2).

Table 2: Frequency of numeral classifier usage among caretakers

Numeral classifier	Pair 5	Pair 7	Pair 8	Pair 10	Pair 11	Total
helai [2D:-rigid]	3			5	4	12
biji [3D:small]	3		2(1)		3(2)	8(3)
batang [1D:+rigid]	3	2	1	1	1	8
keping [2D:+rigid]	1(2)[a]		3		1	5(2)
utas [1D:-rigid]			3		2	5
ketul [3D:medium]	1		2		1	4
buah [3D:big]	1			1		2
Total	12(2)	2	11(1)	7	12(2)	44(5)

[a] Numbers in brackets represent the incorrect usage of numeral classifiers by caretakers, for example, *3 *keping piring* instead of *3 biji piring*

A majority of caretakers used numeral classifiers as a prompting mechanism to get children to count the objects. For example:

Caretaker 5 : *Ada berapa helai baju yang berwarna merah?*
there is how many NumCl shirt that colour red?
'How many red shirts are there?'

Child 5 : *Satu, dua.*
one two
'One, two.'

Caretaker 5 : *Ada berapa helai seluar?*
there is how many NumCl pants
'How many pants are there?'

Child 5 : *Satu, dua*
one two
'One, two.'

Some caretakers showed their children how to count the objects in the picture-book by using numeral classifiers. For example,

Caretaker 7 : *Satu batang pensil, dua batang pensil, tiga batang pensil.*
one NumCl pencil two NumCl pencil three NumCl pencil
'One pencil, two pencils, three pencils.'

Child 7 : *Satu pensil, dua pensil, tiga pensil.*
one pencil two pencil three pencil
'One pencil, two pencils, three pencils.'

Some of the caretakers made corrections to their children's utterances when their children used wrong numeral classifiers in counting the objects, for example,

Child 11 : *Pensil ada tiga *biji.*
pencil there are three NumCl (*biji* [3D: small])
'There are three pencils.'
Caretaker 11 : *Batang*
batang [1D: +rigid]
'*Batang.'*
Child 11 : *Pensil ada tiga batang.*
pencil there are three NumCl (*batang* [1D: +rigid])
'There are three pencils.'

Child 11 : *Tali, tiga *biji tali*
rope three NumCl (*biji* [3D: small]) rope
'Rope, three ropes.'
Caretaker 11 *: Tiga utas tali*
three NumCl (*utas* [1D: -rigid]) rope
'Three ropes.'
Child 11 : *Tiga utas tali*
three NumCl (*utas* [1D: -rigid]) rope
'Three ropes.'

Except for one caretaker (pair 11), all the other caretakers did not insist their children to use numeral classifiers when counting.

Caretaker 8 : *Ada berapa keping gambar?*
there are how many NumCl photograph?
'How many photographs are there?
Child 8 : *Satu, dua. Dua gambar.*
one two two photograph
'One, two. Two photographs.'

Caretaker 8 : *Ada berapa keping CD?*
there are how many NumCl CD
'How many CDs are there?'
Child 8 : *Satu, dua. Dua CD.*
one two two CD
'One, two. Two CDs.'

Child 11 : *Rantai, tiga rantai.*
necklace three necklace
'Necklace, three necklaces.'
Caretaker 11 *: Tiga utas rantai.*
three NumCl necklace
'Three necklaces.'
Child 11 : *Tiga utas rantai.*
three NumCl necklace
'Three necklaces.'

Child 11 : *Seluar, dua seluar.*
pants two pants
'Pants, two pants.'
Caretaker 11 : *Dua helai seluar.*
two NumCl pants
'Two pants.'
Child 11 : *Dua helai seluar.*
two NumCl pants
'Two pants.'

Two of the caretakers also used numeral classifiers as an anaphoric expression – an expression used to refer to an already mentioned object. To illustrate, when the child mentioned the name of an object, the caretaker asked the child the number of times the object appeared on the picture setting, using the numeral classifier that is used to classify the object, without mentioning the name of the object. In the following conversations, Caretaker 5 used the numeral classifier "*batang*" as the anaphoric reference to the noun *river* whereas Caretaker 11 used the numeral classifier "*biji*" as the anaphoric reference to the noun *rambutan*.

Caretaker 5 : *Ini apa?*
this what
'What is this?'
Child 5 : *Sungai*
river
'River.'
Caretaker 5 : *Ada berapa batang?*
there are how many NumCl
'How many are there?'
Child 5 : *Satu, dua.*
one two
'One, two.'

Caretaker 11 : *Ini gambar apa?*
this picture what
'What picture is this?'
Child 11 : *Rambutan.*
rambutan
'Rambutan.'
Caretaker 11 : *Berapa biji*?
how many NumCl
'How many?'
Child 11 : *Tiga biji.*
three NumCl
'Three.'

Only one child used numeral classifiers in his production voluntarily, (i.e., not as a result of prompting or imitating the caretaker). However, this child only used *biji* [3D: small] in place of unknown or unlearned numeral classifiers. This suggests that *biji* was functioning as a default numeral classifier for the child.

Child 11 : *Daun ada dua. Dua *biji daun.*
leaf there are two two NumCl (*biji* [3D: small]) leaf.
'Leaves, there are two. Two leaves.'

Child 11 : *Dua *biji saputangan.*
two NumCl (*biji* [3D: small]) handkerchief
'Two handkerchiefs.'

Numeral classifiers *biji* [3D: small] and *keping* [2D: +rigid] appear to be used as default numeral classifier among the caretakers. *Biji* was used as an alternative numeral classifier in place of *butir* [3D: fine], whereas *keping* was used in place of *helai* [2D: -rigid] and *biji* [3D: small].

Caretaker 11 : *Ada berapa *biji bintang?*
there are how many NumCl star
'How many stars are there?'
Child 11 : *Satu, dua, tiga, empat.*
one two three four
'One, two, three, four.'

Caretaker 11 : *Ada berapa *biji batu permata?*
there are how many NumCl stones precious
'How many precious stones are there?'
Child 11 : *Satu, dua, tiga, empat.*
one two three four
'One, two, three, four.'

Caretaker 5 : *Ada berapa *keping kertas kat sini?*
there are how many NumCl paper near here
How many sheets of paper are there?
Child 5 : *Satu, dua.*
one two
'One, two.'

Caretaker 5 : *Ada berapa *keping pinggan?*
there are how many NumCl plate
'How many plates are there?'
Child 5 : *Satu, dua.*
one two
'One, two.'

Discussion and Conclusion

This research was aimed at identifying the numeral classifiers usage in caretaker-child interaction in a situation where all numeral classifiers had the same chance of being talked about. The findings illustrated that despite the fact that caretakers did use some numeral classifiers in the counting game, the accessibility of different numeral classifiers to different children (i.e., input) varies, because of the huge individual variation in the children's linguistic environment (e.g., Pair 7 vs. Pair 11). This happens either because caretakers choose to use numeral classifiers arbitrarily, or perhaps, because not all of the caretakers have adequate knowledge regarding the correct forms of numeral classifiers. Despite the fact that the experiment does not show how numeral classifier usage in caretaker-child interaction may play a role in the acquisition order of the Malay numeral classifier, the experiment, however, proves that caretakers actually use Malay numeral classifiers in the Malay colloquial language when they interact with their children. This study also exhibits that despite being the most frequently found numeral classifier in written texts, the Malay numeral classifier *buah* appears to be the numeral classifier that is the least frequently used numeral classifier in the counting game. This research, however, is not able to explain the discrepancy. A similar study can be conducted in future to investigate if statistically there is a correlation between the frequency of numeral classifiers in caretaker-child interaction and the order of numeral classifier acquisition among children. A bigger number of participants will be needed to investigate the correlation.

Numeral classifiers are predominantly used in the Malay language in enumerating processes and as well as in referring to mentioned objects both in written and spoken discourse. However, the degree of obligatoriness of the Malay numeral classifiers is less than in other languages. In Thai, for example, numeral classifiers are more extensively used in the sense that they are used even in situations when a numeral is not present (e.g., *I like NumCl cars*). In contrast, nouns in Malay may occur without the presence of numeral classifiers when a numeral is not present. As a result, Malay language users may still be understood despite the absence of numeral classifiers in the speakers' production.

This study also unveils that the frequency of the Malay numeral classifiers in speech directed to Malay children and in the colloquial Malay is very low. Through the "*Putar, Cari, & Kira*" game, it was found that not all adults use numeral classifiers in their interaction with their children. In fact, they hardly encourage their children to use numeral classifiers in the game. This suggests that the use of numeral classifiers in the colloquial Malay is somewhat optional – like the Japanese numeral classifiers that are regarded as "communicatively marginal items" since non usage of the numeral classifiers does not "entail a breakdown in communication" (Yamamoto, 2005, p. 179). This is because, it is thought that the semantic information contained in numeral classifiers is rather redundant and is not semantically essential for communication in striking contrast to nouns and verbs.

As suggested in the low frequency in both the spoken discourse (the current study) and the written discourse (Salehuddin & Winskel, 2009a) of Malay, Malay numeral classifiers are not reliably available in adults' language. This indicates that the degree of

obligatoriness of numeral classifiers in the Malay grammar does play a role in caretakers' numeral classifier usage and their reactions towards children's usage. As a result, numeral classifiers are acquired relatively late, which is evident in both the comprehension and production of Malay shape-based numeral classifiers. In conclusion, this study demonstrates that to a certain extent, input does play a role in the acquisition of numeral classifiers and caretakers play an important role in providing children with the right kind of input to facilitate children's acquisition process.

Acknowledgement

This research is funded by SLAB, UKM, and the 2008 MARCS Auditory Laboratories Graduate Student International Field Work Travel Award. Our gratitude also goes to all caretakers and children who participated in the "Putar, Cari & Kira" game.

References

Adams, K. L., & Conklin, N. F. (1973). Towards a theory of natural classification. In C. Corum, T. C. Smith-Clark & A. Weiser (Eds.), *Paper from the Ninth Regional Meeting of the Chicago Linguistic Society* (pp. 1-10). Chicago: U of Chicago: Chicago Linguistic Society.

Aikhenvald, A. Y. (2003). *Classifiers: A typology of noun categorization*. New York: Oxford University Press.

Allan, K. (1977). Classifiers. *Language, 53*, 285-311.

Carroll, D. W. (2004). *Psychology of language* (Fourth Edition). Belmont, CA: Wadsworth/Thomson.

Chomsky, N. (1959). Review of B. F. Skinner, *Verbal Behavior. Language, 35,* 26-58.

Clark, E. V. (2003). *First language acquisition*. Cambridge: Cambridge University Press.

Craig, C. G. (Ed.). (1986). *Noun classes and categorization*. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Croft, W. (1994). Semantic universals in classifier systems. *Word, 45*, 145-171.

Corder, S.P. (1967). The significance of learners' errors. *International Review of Applied Linguistics 5* (4), 161-170.

Dirin, Z. (2000). *Kamus penjodoh bilangan untuk KBSR*. Kuala Lumpur: Fajar Bakti.

Ellis, R. (1984). *Classroom second language development: A study of classroom interaction and language acquisition*. Oxford, UK: Pergamon.

Gallaway, C., & Richards, B. (Eds.). (1994). *Input and interactions in language acquisition*. Cambridge: Cambridge University Press.

Goodman, J. C., Dale, P. S., & Li, P. (2008). Does frequency count? Parental input and the acquisition of vocabulary. *Journal of Child Language, 35*, 515-531.

Goral, D. R. (1978). Numeral classifier systems: A Southeast Asian cross-linguistic analysis. *Linguistics of the Tibeto-Burman Area, 4*(1), 1-72.

Hopper, P. J. (1986). Some discourse functions of classifiers in Malay. In C. Craig (Ed.), *Noun classes and categorization* (pp. 309-325). Amsterdam/Philadelphia: John Benjamins Publishing Company.

Kiyomi, S. (1992). Animateness and shape in classifiers. *Word, 43*(1), 15-36.

Matsumoto, Y. (1985). Acquisition of some Japanese numeral classifiers. The search for convention. *Papers and Reports on Child Language Development, 24*, 79-86.

McNeill, D. (1966). Developmental psycholinguistics. In F. Smith and G. Miller (Eds.), *The genesis of language* (pp. 15-84). Cambridge, MA: MIT Press.

Mervis, C. B., & Rosch, E. (1981). Categorization of natural objects. *Annual Review of Psychology, 32*, 89-115.

Omar, A.H. (1972). Numeral classifiers in Malay and Iban. *Anthropological Linguistics, 14* (3), 87-96.

Othman, B. (2004). *Penjodoh bilangan*. Selangor: Aneka Publication & Distributors Sdn. Bhd.

Richards, J., Platt, J., & Weber, H. (1985). *Longman dictionary of applied linguistics*. Essex: Longman Group Limited.

Salehuddin, K., & Winskel, H. (2008). Malay numeral classifiers: Sketching its conceptual representation from a native speaker's perspective. Paper presented at *SEALSXVI: 16th Meeting of the Southeast Asian Linguistics Society (2006)*, *E6*, 65-74. (Online) Retrieved 7 May, 2008 from http://www.pacling.com/catalogue/SEALSXVI_Final.pdf

Salehuddin, K. & Winskel, H. (2009a). An investigation into Malay numeral classifier acquisition through an elicited production task. *First Language, 29*(3), 291-313.

Salehuddin, K., & Winskel, H. (2009b). *An investigation into Malay numeral classifier acquisition through a matching comprehension task*. Paper presented at the 16th Biennial Conference of the Australasian Human Development Association, Flinders University, Adelaide.

Salehuddin, K. & Winskel, H. (2011). Object categorisation using Malay shape-based numeral classifiers. *GEMA Online™ Journal of Language Studies, 11*(3), 53-68.

Salehuddin, K., Winskel, H. & Maros, M. (2011). The pragmatic functions of numeral classifiers in modern Malay written corpus. *GEMA Online™ Journal of Language Studies, 11*(2), 137-153.

Scott, C. M. (1988). Spoken and written syntax. In M. A. Nippold (Ed.), *Later language development: Ages nine through nineteen* (pp. 49-89). Austin, Texas: Pro-Ed.

Snow, C. E., & Ferguson, C. A. (Eds.). (1977). *Talking children: Language input and acquisition*. Cambridge: Cambridge University Press.

Tare, M., Shatz, M., & Gilbertson, L. (2008). Maternal uses of non-object terms in child-directed speech: Color, number and time. *First Language, 28*(1), 87-100.

Yamamoto, K. (2005). *The acquisition of numeral classifiers: The case of Japanese children.* Berlin: Mouton de Gruyter.

About the authors

Khazriyati Salehuddin (Ph.D) is a senior lecturer at the School of Language Studies and Linguistics, Universiti Kebangsaan Malaysia. She has a special interest in language and cognition, and child language development, and has published several journal articles and book chapters and a monograph on those areas.

Heather Winskel (Ph.D) is a research scientist and senior lecturer at the School of Health and Human Sciences, Southern Cross University, Australia. She has expertise in cross-linguistic language acquisition and reading research. She uses a range of methodologies and approaches in her research including socio-cultural focused and more experimental based research.