

The Effects of Joint Reference and Mutual Exclusivity on the Application of Whole-Object Assumption in 3-Year Olds Filipino-English Bilingual Preschool Students

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Abstract

This study investigated the word learning constraints 3-year old pre-school students resort to in learning a new word or label. The study tested three possible constraints specifically, the *Whole Object Assumption* to determine if it plays a primary role in the learning of a new word/label in young children, the *Mutual Exclusivity Principle* and the *Joint Reference Principle* to determine if these override the Whole Object Assumption in word learning. Each constraint was tested through audio-visual PowerPoint slides and these were the sources of the data for this study. Through these tests, the study found that the 3-year old respondents assign a new word/label to the whole object and not to any of its parts. A new word/label, however, is assigned to a part of the object if the object is already familiar to the respondents. They also do not apparently rely on social cues like looking or gazing in their learning of a new word/label.

Keywords : Constraints in word learning, Whole Object Assumption, Mutual Exclusivity Principle, Joint Reference Principle

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Introduction

Background of the Study

By learning how objects are named, children are made aware of the objects in their environment and in the world in general. However, with practically every object having a unique label or a term through which it is called, it is interesting to know how a child learns and remembers these.

A child learns an average of 5-9 words per day between 18 months to 6 years of age (Pinker, 1994 in Avram, 2002). It has been found that children use certain cognitive and linguistic operating principles that help facilitate their focus and hypothesis formation with regard to the meaning of new words they encounter (Gleason, 1989). Likewise, word-meaning formation among children is accomplished only when they have been able to gain a sufficient cognition of what people refer to with the words they use (Bloom, 2000 in Avram, 2002). Gleason (1989) called this the process of semantic development in children where “children’s strategies for learning word meanings and relating them to one another change as their internal representation of language constantly grows and become reorganized” (p. 16). Quine (1960) argued that when presented with a novel word, one could never entirely ascertain the exact meaning of that word, as it could pertain to an infinite number of possible definitions. For example, if an adult pointed to a cat washing its paws and said the word ‘cat’, it is unclear if the word ‘cat’ refers to the whole cat, part of the cat (*e.g.* the paws), the cat’s behavior (washing) or other aspects of the cat. It is then possible that the child can ascribe a variety of meanings to a new word.

Constraints Children Use In Learning New Words

Markman (1992) claims that constraints on word learning are needed to help children solve the inductive problem that word learning poses. In relation to this claim, word-learning constraints such as *whole-object assumption*, *mutual exclusivity* and *joint reference* may be necessary for language acquisition (as cited in Go & Miraflores, 2010).

The Whole Object Assumption

A basic way a 3-year old can learn a new word is through the *whole object principle*. Generally, children are introduced to objects or things in their environment through the presentation of the whole object. In their 1984 study, Markman and Hutchinson proposed that children limit the possible meanings of words to similar objects. They conducted a series of experiments where comparisons were made on how children organized objects when the object was assigned a novel label versus when it (object) was not given a novel label.

In another study, Soja, Carey and Spelke (1992) found that children associate objects because of their distinctive features. Woodward (1992) and later Hirsh-Pasek, Hollich and Golinkoff (2007) have found children prefer to label objects based on “wholeness” rather than the salient parts of the objects.

Mutual Exclusivity

According to Markman, mutual exclusivity is an assumption that an object can only have one meaning or have only one name (Markman, 1987). This assumption can override the whole-object assumption because children can likewise employ this hypothesis as they learn a new word (Go & Miraflores, 2010). Children are inclined to assign the identified label for an object exclusively for that object so that these do not get mixed up with the label of other objects (Merriaman & Bowman, 1989).

The underlying operation of mutual exclusivity is shown in several studies such as the aforementioned study by Markman and Wachtel (1988) where children assigns labels to the object if the said object has not yet been given a label yet and at the same time assigns label to the salient part if the object has been given a previous label. Further, Markman, Wasow and Hansen (2003) found in their series of studies that young children tended to search or look around for something else as a “potential referent” when they heard the novel label, and use mutual exclusivity to guide their interpretation of a novel term to some extent, which is demonstrated by the rejection of a second term for the familiar object. Markman et al.’s (2003) findings have been further validated by Maher (2004) when he found that 16-month olds

rejected second labels for familiar objects due to their assumption that there can only be one label for an object.

Similarly, Birch, Vauthier and Bloom (2008) found that 3- and 4-year-olds favor learning new words and learning new object functions through applying the principle of mutual exclusivity to the newly learned words but not the newly learned functions.

Moreover, Frank and Pulin-Dubois' (2002) cross-sectional study involved monolingual and bilingual children aged 27 and 35 months. Results indicated that across both language groups, the older children honored mutual exclusivity more than the younger children. No differences were found between monolinguals and bilinguals in adherence to mutual exclusivity.

Joint Reference

The final premise of this study for the learning new words among 3-year olds is the joint reference principle. This principle basically takes into account the influence of the communicator particularly his/her use of social cues like gazing or pointing in the process of teaching the child a new term or word.

Baldwin (1989, in Markman, 1992) suggested that children rely on eye gazing or pointing when there is no salient object around at the time of labeling. It is further noted that the engagement of the attention (through gazing or pointing) of both the communicator and the child to the object being labeled by the new term is an effective word learning strategy (Akhtar and Gernsbacher, 2007 cited in Go & Miraflores, 2010).

A proposition suggesting that young children observe social cues such as eye gazing or pointing when there is no salient object around at the time of labeling was proposed by Baldwin (1989, in Markman, 1992). Joint reference of attention manifested in the parents' and children's coordinated attention to each other and to a third object or event is seen as an important contributor to children's early word learning.

Studies on joint reference include Baldwin, Markman, Bill, Desjardines and Irwin (1996) and Morales, Mundy, Delgado, Yale, Messinger, Neal, and Schwartz (2000) which both found that children can label objects through seeking cues from adults.

Maher (2004) claims that children use social cues like pointing or gazing done by the person they interact with to help them learn new words. In this case, social pragmatic theories

are used to explain early word learning as a child's word learning is facilitated when the adult and the child's attention are in tune (Hirsh-Pasek, Golinkoff, & Hollich, 2007).

Similarly, Carpenter, Nagell, Tomasello, Butterworth and Moore (1998) conducted two studies on joint attention. They found that communicative competence included not only language production, but also language comprehension and gesture production. Furthermore, the study showed two measures-the amount of time infants spent in joint engagement with their mothers and the degree to which mothers used language that followed into their infant's focus of attention-predicted infants' earliest skills of gestural and linguistic communication.

Mather and Plunkett (2010) in an intermodal preferential looking task found that novel labels support 10-month-olds' attention to a novel object over a familiar object. In contrast, familiar labels and a neutral phrase gradually reduced attention to a novel object.

Markman (1989, 1990) argued that infants must recall the name of a familiar object to exclude it as the referent of a novel label. They argue however that 10-month-olds' attention is guided by the novelty of objects and labels rather than knowledge of the names for familiar objects. Mutual exclusivity, as a language-specific bias, might emerge from a more general constraint on attention and learning.

Statement of the Problem

This study extends the work of Go and Miraflores (2010) who sought to analyze the effects of joint reference and mutual exclusivity on the application of whole-object assumption in Filipino preschoolers. Their study, however, only had ten preschooler respondents, which was clearly not enough to render the results conclusive. It should be noted that this present study tested the Whole Object Assumption, Mutual Exclusivity Principle, and Joint Reference Principle separately.

The questions this study aims to answer are the following:

1. Does the whole-object assumption have a primary role in children's learning of new words?
2. Does mutual exclusivity override the whole-object assumption in learning new labels for familiar objects?
3. Does joint reference override the whole-object assumption in learning new word labels?

Research Framework

Studies have shown that children basically learn and remember new words through the reference to the whole object. The conceptual framework of this study tests whether reference to the whole object is the sole factor at work in children’s learning new words and whether the mutual exclusivity assumption and joint reference principle can override the whole object principle.

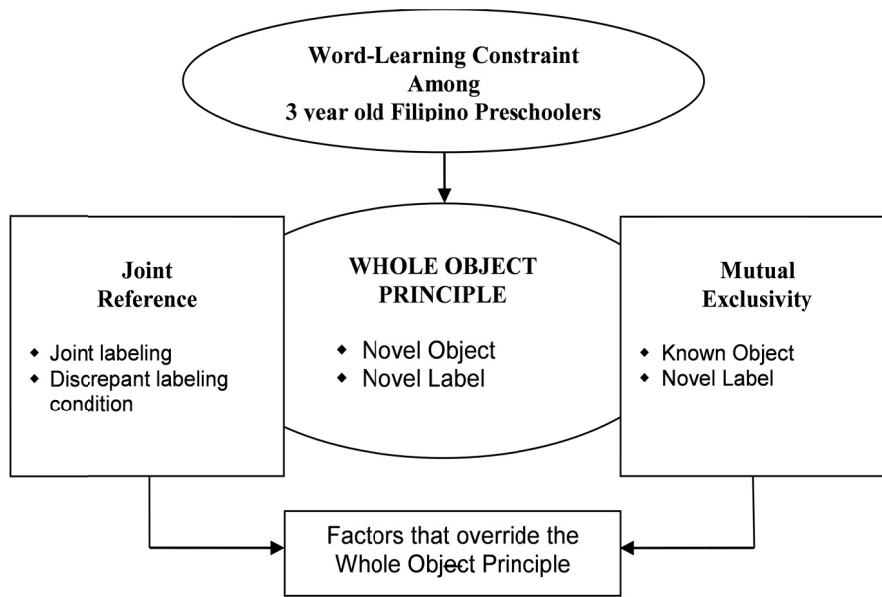


Figure 1. The Effect of Mutual Exclusivity and Joint Reference on Whole Object Assumption

Methodology

Materials and Instruments

There were three sets of materials for testing a theory on word learning constraint: the whole object assumption, mutual exclusivity, and joint reference. All the materials were presented through PowerPoint with an audiovisual recording. An audio recording of the

instructions was played as the pictures were presented to the respondents to eliminate inconsistencies, which may arise as the researcher give instructions to each respondent. Two versions of the instructions were made: one in English and one in Filipino. The respondents indicated their answers by encircling these on answer sheets.

Testing the Whole-Object Assumption

Materials. The test for the Whole-Object Assumption had three colored and two black-and-white abstract geometric figures rendered. Each figure was shown on a PowerPoint slide with an audio recording of the instructions. For this test, pre-printed answer sheets with printed two variants of the figures presented through the PowerPoint was also used. The respondents indicated their answers on the pre-printed answer sheet. Each abstract geometric figure has two variants: one showing a part of the original object but having all the same attributes like color and texture and the other showing the same whole figure but with a different attribute like color, size, or pattern. Corresponding variants were also rendered for the two black-and-white figures.

Testing the Mutual Exclusivity Assumption

Materials. The test for Mutual Exclusivity consisted of three illustrations of familiar objects: a flower, an apple, and a cat. These illustrations featured a salient part of the familiar object. Each of illustration was shown in a PowerPoint slide with an accompanying audio recording of the instructions for the respondents. Pre-printed answer sheets with the three familiar objects illustration were also used. There were six illustrations for the second set of experiment: three illustrations were presented through PowerPoint slides and three were presented through the pre-printed answer sheets.

Testing the Joint Reference Assumption

Materials. The test for the Joint Reference had a bucket-like container and two sets of toys plus a set of three colored illustrations as materials. This set featured a person on video

who introduced the new term/word to the respondents through social cues like gazing and holding the toys and illustrations. For this test on joint reference, the researcher indicated the respondents' answer with a check mark on the column corresponding to the given answer on a pre-printed answer sheet.

The responses indicated in the pre-printed answer sheets were the instruments used in the data gathering for this study.

Participants of the Study

Three-year old children were selected as this is the age at which the majority of children have mastered the vowel sounds as well as most of the consonant sounds (Owens, 2005). The target age of 3.0 to 3.11 years old was set for this study because children at this age are still well within the linguistic developmental stage where the "vocabulary spurt" (Markman, 1992) occurs. Forty 3-year old Filipino preschool children, twenty males and twenty females participated in this study. The mean age of the respondents was 3.4 (mean age for females = 3.4; mean age for males = 3.4). The respondents were from five preschools within Manila.

Data Gathering Procedures

The Test Procedure. The laptop which contained the PowerPoint slides and the audiovisual materials as well as the preprinted answer sheet were set up in the testing area before the participants were ushered in one at a time.

Test for Whole Object Assumption

Procedure. An audiovisual PowerPoint presentation of the whole abstract figures *wug*, *razzle*, *shmoo*, *koosh*, *chuzzle* was presented one at a time to the participants. Each figure was labeled using the statement form "This is ____" ("*Ito ay ____*") in the participant's first language. After each figure presentation, the participants were asked "Where is the ____?" ("*Nasaan ang ____?*") The participants' were then asked to encircle which of the two variants in the preprinted answer sheet they think was the figure shown to them. The next figure was

shown and the same procedure of asking and encircling their answer was done. The participants were expected to encircle the figure, which had the same shape or pattern as the original figure shown to comply with the Whole Object Assumption.

Test for Mutual Exclusivity

Procedure. The test for Whole Object Assumption was immediately followed by the test for Mutual Exclusivity. There were two parts for this test: the before questioning part and the after questioning part. In the before questioning part, an audiovisual PowerPoint presentation of a picture of familiar objects – flower, apple, cat- one at a time and was presented with a label/term that referred to a part of that familiar object. The label/term *pollen* was presented with the picture of the flower. The audio in the PowerPoint presentation would give the instruction to encircle the “pollen”. The label/term *stamen* with the picture of the apple and the label/term *whiskers* with the picture of the cat were presented next. The same instruction to encircle the “stamen” and the “whiskers” on the answer sheet was given after each respective presentation.

In the after questioning part of the test, the participants were asked to point at what they think is the *pollen* (for the flower illustration), *stamen* (for the apple illustration) and *whiskers* (or the cat illustration). The expectation for this test was the participants would connect the label/term to an attribute of the familiar object. This would show whether or not the Mutual Exclusivity principle can override the Whole Object Assumption.

Test for Joint Reference Principle

Procedure. The test for Mutual Exclusivity was immediately followed by the test for Joint Reference. The video presentation featured a female who introduced the new term/word to the respondents through social cues like gazing and holding the toys and illustrations. The female in the video holds a colored picture of an object and says “*This is gaver*” while her attention is turned away from the picture. As her attention is away from the picture of the first object, she pulls out a colored picture of a second object. Two colored pictures of objects were now presented to the respondents. She then asks the respondents “*Which one is gaver?*”

Can you point to gaver?" In the second set of this test, the respondents were shown a toy. The female in the video says *"This is Poppy."* She then puts *Poppy* out of sight of the respondents. Then the female in the video shows the respondents Toy Number 1 and says *"This is Spencer"*. While her attention is turned away from Toy Number 1, she pulls out Toy Number 2, which is identical with Toy Number 1 except in its color. She then asks the respondents *"Which one is Spencer? Can you point to Spencer?"*. In the third and final set of this test, the respondents were shown another set of toys. The female in the video says *"This is Nel."* She then puts *Nel* out of sight of the respondents. Then the female in the video shows the respondents toy Number 3 and says *"This is Jicky."* While her attention is turned away from toy Number 3, she pulls out toy Number 4 which is different from or not identical with Toy Number 3. She then asks the respondents *"Which one is Jicky? Can you point to Jicky?"* The different toys for this last set of the test was purposely done to determine if a difference in the object would affect the respondents' identification or learning of the novel term or label. The expectation for this test was the respondents would associate the novel term/label with the object or toy, which the female in the video had her gaze on as she introduced the novel term/label. This would show whether or not the Joint Reference principle could override the Whole Object Assumption.

Analysis of the Whole Object Assumption Principle Data

The data analyzed for this test were based on the encircled responses of the participants on the preprinted answer sheet for the Whole Object Assumption test. The two options were based on the variants of the geometric figures used for this test.

The responses were tabulated for frequency count using Microsoft Excel (See Table 1) before subjecting it to the chi square test.

Analysis of the Mutual Exclusivity Principle Data

The data analyzed for this test were based on the encircled responses of the participants in the "Before Questioning" part and the responses they gave in the "After Questioning" part of the test for the Mutual Exclusivity Principle. Two to three possible answer choices were

provided for each illustration for this test in the “Before Questioning” and “After Questioning” parts.

The responses were tabulated for frequency count using Microsoft Excel (See Table 2) before subjecting it to the chi square test.

Analysis of the Joint Reference Principle Data

The data analyzed for this test were based on the participants’ responses about which illustration or figure the new term/label belonged to figure 1 or figure 2. The responses were tabulated for frequency count using Microsoft Excel (See Table 3) before subjecting it to the chi square test.

Results and Discussion

Table 1 shows the options selected by the 3-year old participants when presented with a term/label for a new object.

Table 1. *Difference in the Selection of Options for the Whole Object Assumption*

Figure No.	Option	%	Observed Frequency (fo)	Expected Frequency (fe)
1 <i>Wug</i>	Option B: only part of the original figure but same color as original	72.5	29	20
2 <i>Razzle</i>	Option B: only part of the original figure but has the same color and pattern	62.5	25	20
3 <i>Shmoo</i>	Option A: same as original figure	70	28	20
4 <i>Koosh</i>	Option A: same as original figure, also in black and white	80	32	20
5 <i>Chuzzle</i>	Option A: same as original figure but has no pattern, also in black and white	70	28	20
6 <i>Wug</i>	Option A: same as original figure, but different color	27.5	11	20
7 <i>Razzle</i>	Option A: same as original figure, different color and no pattern	37.5	15	20
8 <i>Shmoo</i>	Option B: only part of the original figure but has same color and pattern	30	12	20

9 <i>Koosh</i>	Option B: only part of the original figure, also in black and white	20	8	20
10 <i>Chuzzle</i>	Option B: only part of the original figure but has pattern, also in black and white	30	12	20
TOTAL			200	
Obtained value =37.8 <i>df</i> = 9 χ^2 critical value = 16.92				

The difference in the selection of Option A and Option B in the Whole Object Assumption was tested using a chi-square test. The chi-square obtained value is 37.8 which is larger than the critical value of 16.92 ($\alpha_2=.05$). This means that there is a significant difference in the selection of the participants between options A and B across the 5 items for the Whole Object Assumption test.

The results show that there were more participants who attributed the new word/label with a reference to the whole figure. This is evident in three out of the five items in this test ($f_o=28$ Figure 3; $f_o=32$ Figure 4; $f_o=28$ Figure 5). The participants chose the option where the illustration is the same as what was presented initially to them even if there was a slight variation in the figure (as in the case of Figure 5 *Chuzzle*). With the 3-year olds' tendency to attribute the new term/label to the whole object, it can be said that the Whole Object Assumption has a primary role in children's learning of a new word. This may be due to their tendency to see the new object as a whole once given a term for it.

The results of the Whole Object Assumption test show that children tend to see a new object as a whole once given a term for it. This is supported by Soja, Carey, and Spelke's (1992) study that children initially assume that a new label/term is likely to refer to the whole object and not to its parts. This result is consistent with Markman's "whole object principle" which states that children tend to assume that a new word label they hear intrinsically refers to a whole object and not to a part or an attribute of that object. With the 3-year olds' tendency to attribute the new term/label to the whole object, the Whole Object Assumption is one constraint that children use in their learning of a new word and could have a primary role in children's learning of a new word.

Table 2 shows the figures selected by the participants when tested for the Mutual Exclusivity Principle.

Table 2. *Difference in the Selection of Figures for the Mutual Exclusivity Principle*

Figure No.	Selection of figures	Observed Frequency (<i>fo</i>)	Expected Frequency (<i>fe</i>)
1 <i>Pollen</i>	Before questioning:		
	A. Encircled/initially identified the whole figure as "pollen"	35	16.76923
	B. Encircled/identified a specific part of the figure as "pollen"	5	16.76923
	After questioning:		
	A. identified yellow part of the figure as "pollen"	4	16.76923
	B. Identified red part of the figure as "pollen"	2	16.76923
2 <i>Stamen</i>	C. Separately identified either the yellow or red part of the figure as "pollen"	28	16.76923
	Before questioning:		
	A. Encircled/initially identified the whole figure as "stamen"	33	16.76923
	B. Encircled/identified a specific part of the figure as "stamen"	7	16.76923
	After questioning:		
	A. Identified brown part of the figure as "stamen"	4	16.76923
3 <i>Whiskers</i>	B. Identified red part of the figure as "stamen"	6	16.76923
	C. Separately identified either the brown or red part of the figure as "stamen"	23	16.76923
	Before questioning:		
	A. Encircled/identified the whole figure as "whiskers"	31	16.76923
	B. Encircled/identified a specific part of the figure as "whiskers"	8	16.76923
	After questioning:		
	A. Separately identified any part of the figure as "whiskers"	32	16.76923
TOTAL		218	

Obtained value = 129.1835
 $df = 12$
critical value = 21.03

The difference in the selection of figure A, figure B, and figure C before and after questioning for Mutual Exclusivity Principle was tested using a chi-square test. The chi-square obtained value is 129.18 which is larger than the critical value of 21.03 ($\alpha_2=.05$). This means that there is a significant difference in the selection of participants for figure A, figure B, and figure C before and after questioning for Mutual Exclusivity Principle.

It can be noted from the results that in the *Before* questioning part of the test, most of the participants encircled the familiar whole object illustration when asked to identify (encircle) the new term/label. This was consistent for the three items in the test for Mutual Exclusivity. However, in the after questioning part, when the participants were asked if certain parts of the whole object was the new term/label, they no longer referred to the whole object but pointed to a certain part of the object as the new term/label. This suggests that the Whole Object Assumption may still be at work in the perception of the 3-year olds, but since the object is a familiar one and they already have knowledge of the term by which this familiar object is called, they have thus assigned the new term/label to a certain part of the familiar object. In this manner the Mutual Exclusivity Principle overrides the Whole Object Assumption in learning new word.

The results indicate that the Mutual Exclusivity Principle is another factor that can influence word learning in preschoolers and is a part of their linguistic and cognitive processes. Even with the initial tendency of the 3-year old respondents to identify the new word/label with the whole object (*Before Questioning*) but eventually assign the new word/label to a part of the object (*After Questioning*), the respondents “still used mutual exclusivity to guide their interpretation of a novel term to some extent” (Markman, Wasow and Hansen, 2003). In this manner, therefore, it may be said that the Mutual Exclusivity Principle overrides the Whole Object Assumption in the learning new words among the 3-year old preschoolers.

Table 3 shows the difference in the participants’ selection of figure 1 and figure 2 for the Joint Reference Principle.

The difference in the selection of Figure 1 and Figure 2 for the Joint Reference Principle was tested using chi-square test. The chi-square obtained value is 10.83 which is less than the critical value of 11.07 ($\alpha_2=.05$). This means that there is no significant difference in the selection of participants for Figure 1 and Figure 2 for the Joint Reference Principle in the

three items. This result suggests that, for the 3-year old participants, learning new words or attributing the new word/label to an object does not seem to be influenced by social cues such as looking or gazing.

Table 3. *Difference in the Selection of Figures for the Joint Reference Principle Test*

Item	Selection of Figure	Observed Frequency (<i>fo</i>)	Expected Frequency (<i>fe</i>)
GAVER	Figure 1	26	19.83333
SPENCER	Figure 1	27	19.83333
JICKIE	Figure 1	24	19.83333
GAVER	Figure 2	13	19.83333
SPENCER	Figure 2	13	19.83333
JICKIE	Figure 2	16	19.83333
TOTAL		119	

Obtained value = 10.83193
df = 5
critical value = 11.07

In contrast to earlier studies, this current research had 3- year old preschoolers as respondents. Unlike the infants and younger children respondents, the 3-year olds in this study were consistent in assigning the name of the object to the figures which did not have the element of looking or gazing from the person in the video more than 50% of the time. The respondents' referent for the name presented to them was the first object they were shown and not the one that the person on the video was looking at as the name of the object was being mentioned. This consistency was noted although the element of looking or gazing by the person in the video was obvious to the respondents. Their choice of the first figure presented was prevalent and was consistent for the three items in the test for the Joint Reference Principle.

The Joint Reference Principle may not be a constraint or strategy used by the 3-year old participants in learning new words and provides insufficient basis to surmise that the Joint Reference Principle overrides the Whole Object Assumption in learning new words/labels. However, it is also important to acknowledge at this point that a simulated joint reference

procedure may not have been an accurate measure whether or not the joint reference principle was at work among the 3-year old respondents. The studies in the literature for joint reference had actual communications interaction between the respondent and the test administrator. This study used recorded audiovisual material to simulate the testing of the joint reference principle. The results yielded by this particular test on joint reference should thus be taken in the light that these were results derived from a recorded audiovisual material.

This finding points to two things, which may be worth considering at this stage of the 3-year olds' development and about the Joint Reference Principle. First, the 3-year olds may be starting to be more perceptually receptive as far as their learning is concerned. It could mean that the 3-year olds may not need to be directed in their focus when taught the name or label of an object. Infants or younger children, on the other hand, need help in directing their attention or focus on the objects they are taught names or labels for. Second, the 3-year olds seem to be exercising more independence in knowing more about their environment and the things therein. This could be a part of the exploratory stage of their development at this point. They are likely to focus on probably what interests them or catch their attention instead of relying on social cues or what other people would want them to look at.

Conclusions

By and large, the study researched on word learning in 3-year old preschoolers. The study particularly focused on three possible constraints namely, the Whole Object Assumption, Mutual Exclusivity Principle and Joint Reference Principle as strategies young children may use in their learning of new words or labels for unfamiliar objects. By administering a test for each possible constraint, the researcher was able to obtain data from each test's results.

This study yielded three significant findings. The first is that the Whole Object Assumption plays a primary role in the 3-year olds' learning of new words/labels. The 3-year olds' reference when they attribute a new label to an unfamiliar object is the whole object itself and not any part of the object. This result is supported by Markman's (1992) whole object principle which states that children have the tendency to assume that the word/label they hear refers to the whole object and not to any of its parts.

The second is that the Mutual Exclusivity Principle overrides the Whole Object Assumption. When the 3-year old participants were given a new word/label accompanying an object familiar to them, they attributed this new word/label to a part of the familiar object. This finding is consistent with Markman's (1989 and 1992) assumption that children assign a new word/label to the object if the object is unfamiliar to them, however, they would assign the new word/label to a part of the object if they already have a label for the familiar object. This result shows that the whole object bias can be overridden by the Mutual Exclusivity Principle.

The third is that the Joint Reference Principle does not seem to have a bearing on the 3-year old respondents' learning of new words/labels. It may be that for 3-year olds, social cues like looking or gazing are not that essential or crucial in their learning of new words/labels. The Joint Reference principle, in this case, does not override the Whole Object Assumption. This result is not congruent with the studies on joint reference cited in this research, which mostly had infants or children younger than three years old as respondents.

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