

## Development of the *Konsep MI* in Word Classification - Fuzzy Delphi Analysis (FDM) Based on Expert Consensus

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### Abstract

Determining word classes such as nouns, verbs, and adjectives in Malay language remains a challenge for non-native students especially at Sekolah Jenis Kebangsaan Tamil (SJKT). Therefore, the *Konsep MI*, which emphasizes two criteria such as meaning of the word and presence of affixes has been developed to facilitate the process of word class identification. Hence, this study was conducted to obtain expert consensus on the design and development of the *Konsep MI*, which includes Word Class Signal Lights, *Orang Adjektif*, Pyramid NAsKp Model, and *Cam Kata* game, to meet the needs of the target group. The Fuzzy Delphi Method (FDM), assisted by a questionnaire using a five-point Likert scale was employed to gather expert opinions. Data analysis was based on the views of 20 experts in the field of Malay language regarding the design and development of the concept before implementation in schools. The findings indicated that all presented items met acceptance criteria, with threshold values ( $d$ ) below 0.2, expert consensus exceeding 75%, and defuzzification values exceeding 0.5. All suggestions for improvement proposed by experts were considered and accepted to ensure that the incorporated elements enable students to understand the process of word class identification easily. Therefore, the development of the *Konsep MI* has been endorsed by experts as a guide to help students learn about word class identification through an educational and entertaining approach, aligned with 21st-century learning principles.

**Keywords:** Konsep MI, Word Class, Expert Consensus, Affixes, Innovation Kit, Vernacular School

### Introduction

The mastery of the Malay language among Sekolah Jenis Kebangsaan Tamil (SJKT) students' hold a multifaceted significance within the Malaysian educational landscape. As one of Malaysia's national languages and a vital medium of communication, proficiency in Malay is

essential for fostering social cohesion, facilitating intercultural dialogue, and promoting academic success. However, the mastery level of the Malay language among the vernacular school students is notably weak (Teo, 2014). In 2011, the Ministry developed the Malaysia Education Blueprint 2013-2025, which introduced a new Bahasa Melayu curriculum tailored for second language learners. However, despite these efforts, the longstanding language issue remains unresolved, persisting since 1951 (Zamri, 2021).

In the realm of language acquisition, understanding word classes serves as a fundamental building block for effective communication and comprehension. Word classes, also known as parts of speech, categorize words based on their syntactic functions and semantic roles within sentences. These classes include mainly nouns, verbs, and adjectives. Without a proper understanding of word classes, students struggle to construct grammatically correct sentences especially in essay that impedes clarity and coherence (Gopal et al., 2023). The misuse of word classes is not only detectable in students' answer scripts but also found in blog writing (Rashid et al., 2015). Moreover, students' proficiency levels, especially those from SJK(T), in identifying word classes are below standard. They frequently overlook the presence of affixes and the meaning of words, particularly when classifying nouns and verbs. Many of them mistakenly assume that nouns with affixes are always verbs (Subramaniam et al., 2023). Hence, research on the mastery of Malay language among students in vernacular schools is one of the most extensively researched areas in Malaysia. Numerous studies have been conducted to assess students' mastery levels of specific word classes and propose various solutions, including games, mobile applications, innovative kits, and more (Aziz & Salim, 2017; Ahmad & Nawati, 2018; Sidik & Rosli, 2017).

Languages are classified according to how words are made. Linguists have identified five basic components; morphology, syntax, semantics, pragmatics and phonology. These components provide a framework for analysing and understanding the various aspects of language structure, meaning, and use. Linguists use these components to explore the intricacies of different languages and to compare and contrast their linguistic properties. In the Malay language, word classes can be determined using three criteria: traditional, modern, and functional (Jamaluddin, 2008). Traditional criteria rely on conventional linguistic categories inherited from historical grammatical analyses. Modern criteria for word class determination in Malay may take into account linguistic theories and analyses that are more contemporary. It involves refining existing ones based on insights from modern linguistic research. For example, modern linguistic analysis might distinguish between different subtypes of nouns or verbs based on semantic or syntactic properties. Besides that, the presence of affixes in words will be a very useful indicator for the student to identify the word class even when the meaning eludes them. Finally, functional criteria focus on the role that words play within sentences and discourse, considering their functions in communication. This criterion may involve categorizing words based on their semantic roles, syntactic functions, or discourse functions. Functional criteria can provide insights into how words are used in context to convey meaning and facilitate communication. It is stipulated that the categorization of word classes requires the integration of multiple criteria rather than relying on a single criterion. However, challenges may arise in the journey towards mastering word classes among SJKT students. Factors such as limited resources, language barriers, and varying levels of prior knowledge can impact the pace and depth of learning. Addressing these challenges requires innovative teaching methods, tailored instructional materials, and a supportive learning environment that nurtures students' linguistic development. In line with this, a concept called *Konsep Maksud & Imbuhan (MI)* which fulfills the three criteria used in determining the word

classes have been developed. This concept consists of several elements such as Word Class Signal Light (*Lampu Isyarat Golongan Kata*), *Orang Adjektif*, Pyramid Model NAsKp, and *Cam Kata Game*, which will serve as guidance for teachers and students, particularly those from vernacular schools, in determining word classes.

The implementation of *Konsep MI* will be poised to significantly impact primary school children, particularly those in Year 6, in mastering the determination of word classes. This concept will serve as a comprehensive guide, enabling students to grasp fundamental grammatical rules with greater clarity and precision. By understanding the various elements of *Konsep MI*, students can effectively identify and categorize words according to their respective classes. This heightened awareness of word classes empowers students to produce high-quality essays and written work, free from grammatical errors.

Therefore, this study was carried out to obtain expert consensus in designing and developing *Konsep MI* before implementation in schools. This ensures that the concept aligns with the national curriculum standards and educational objectives, guaranteeing its effectiveness and suitability for primary vernacular school students.

### Research Design

The researcher employed the Fuzzy Delphi Method (FDM) to attain expert consensus on the elements utilized in developing and designing the *Konsep MI*. The selection of the Fuzzy Delphi Method over the Delphi technique was based on its efficiency in saving time and cost in questionnaire management. Additionally, it enables experts to offer continuous feedback, making it the optimal method for obtaining expert consensus on a problem (Jamil et al., 2017). The researcher followed the seven steps implemented by FDM to obtain expert consensus for designing and developing the *Konsep MI*, as illustrated in Figure 1.

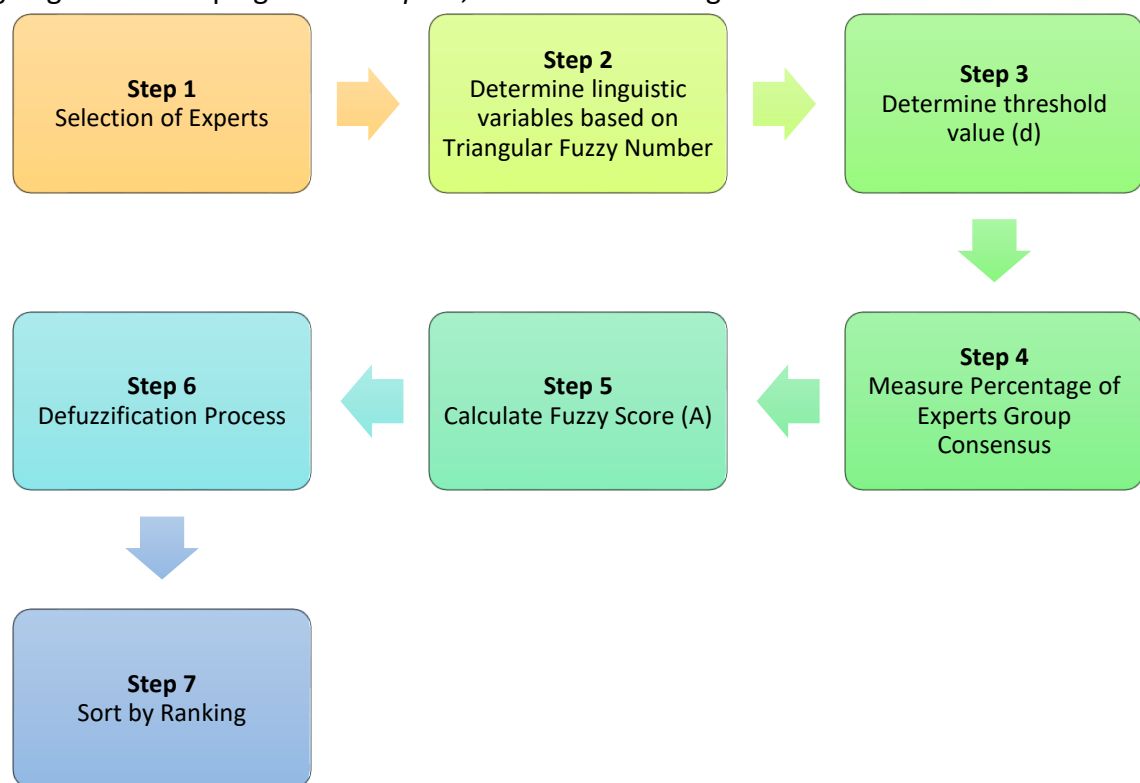


Figure 1. Implementation steps of the Fuzzy Delphi Method

### Selection of Experts

The optimal number of experts to ensure high uniformity in Fuzzy Delphi studies is approximately 20 individuals (Hsu & Sandford, 2007). Hence, a total of 20 experts were chosen using purposive sampling techniques for this study (Chua, 2010). Several criteria were established for expert selection: (i) being an option Malay language teacher, and (ii) possessing a minimum of ten years of experience in the field. Additionally, experts from various backgrounds besides Malay language teachers were included, such as academic lecturers from the Institute of Teacher Education Malaysia, the Head of the Language Research Division from the Institute of Language and Literature, and the Deputy Director of the Curriculum Development Division at the Ministry of Education Malaysia. School Improvement Specialist Coaches (SISC+) from the District Education Office, who serve as mentors for teachers in pedagogy, assessment, and curriculum development to enhance teaching quality and facilitation in schools, were also selected as experts.

### Questionnaire

The researcher developed a questionnaire based on a literature review, adapted from a study by Narayanan (2020) on the development of innovation kit specifically for SJKT students. The questionnaire has been validated by the researcher in the previous study. Therefore, a new reliability test is not required. To address the research question, a five-point Likert scale questionnaire was hand out to experts to obtain consensus on the items (Table 1).

Table 1

*Fuzzy Conversion Scale of 5-point Likert Scale*

Likert scale	Scale Level	Fuzzy Scale
5	Strongly agree	0.6, 0.8, 1.0
4	Agree	0.4, 0.6, 0.8
3	Neither agree or disagree	0.0, 0.4, 0.6
2	Disagree	0.0, 0.2, 0.4
1	Strongly disagree	0.0, 0.2

(Adapted from Mohd Ridhuan et al., 2014)

### Data Analysis

The data collected from the expert were analysed quantitatively using Microsoft Excel as suggested by Jamil et al. (2014). In FDM, Triangular Fuzzy Numbers and Defuzzification Process are two primary components essential to understand. Triangular Fuzzy Numbers play a crucial role in translating linguistic variables into fuzzy numbers, representing the minimum value ( $m_1$ ), the median value ( $m_2$ ), and the highest value ( $m_3$ ). A higher fuzzy scale indicates more accurate data acquisition. Triangular Fuzzy Number has two conditions during the acceptance of each item approved by the experts, first, the value of threshold ( $d$ ) should be  $\leq 0.2$ . The threshold value plays crucial role in determining the level of agreement among experts (Thomaidis et al., 2006). Expert consensus is achieved if the threshold value is less than or equal to 0.2 (Cheng & Lin, 2002).

The second condition is that expert consensus must exceed 75%. Overall expert consensus needs to exceed 75% for each item, and a second round is required or discarded if the predetermined percentage of consensus is not achieved (Chang et al., 2011; Cheng & Lin, 2002). Items that have achieved an expertise percentage exceeding 75% indicate high expert consensus (Chu & Hwang, 2008).

Next, the fuzzy (A) score value for the ranking position of a particular item in the questionnaire is determined by using the Defuzzification Process. The following formula was used to calculate the fuzzy score value.

$$A_{max} = \frac{1}{4} (m_1 + m_2 + m_3)$$

If the resulting value of A is less than the alpha Defuzzification value ( $\alpha$ -cut) of 0.5, then the measure item will be rejected due to a lack of expert consensus. Therefore, the  $\alpha$ -cut value for each item must exceed 0.5 to accept the measured items (Tang & Wu, 2010). Finally, each variable will be ranked according to the level of importance of the experts in developing and designing the *Konsep MI*.

Any suggestions from the experts on the development of *Konsep MI* will be evaluated and considered to ensure that the fundamental objectives of the developing a new concept could be achieved.

## Results and Discussion

### Experts Demographic

The researcher has selected 20 experts to obtain their acceptance and suggestion for the designing and development of *Konsep MI* which helps to determine the word classes largely for vernacular school students. About 15 of them are the Head of Malay language teachers from various schools in Malaysia. Table 2 shows the demographic of selected experts for this study. The professionals have expertise in Malay language and have more than 10 years' experience either in teaching or in their field of work. Experienced option Malay language teachers undoubtedly possess expertise in pedagogy and are knowledgeable about the issues or challenges faced by students during the language learning (Noorzailiza et al., 2020). They have explored various opportunities through daily teaching tasks compared to non-option teachers which contributes to effective teaching method. In addition, the selected specialists from SISC+, university and language research centre are experts in Malay language, pedagogy, curriculum, and classroom management. Therefore, their opinion on the suitability of *Konsep MI* for the target group is valuable.

Table 2

*The demographic information of selected experts*

Institute	Field of Expert	Job Position	Teaching Experience	Total
SJK(T)	Malay Language	Head of Subject	10-15 years	7
			16-20 years	5
			>21 years	3
District Education Office	Malay Language	SISC+ Officer	10 years	2
Institute of Teacher Education Malaysia	Malay Language	Lecturers	24 years	1
Institute of Language and Literature	Malay Language	Head of the Language	21 years	1

		Research Division		
<b>Curriculum Development Division (Ministry of Education Malaysia)</b>	Malay Language	Deputy Director	15 years	1
<b>Total experts</b>				20

### Analysis of Expert Consensus on Fuzzy Delphi Method (FDM)

The elements given to the experts to evaluate the Fuzzy Delphi Method are stated in Table 3.

Table 3

*Items to investigate Fuzzy Delphi Method*

Items	
<b>A1</b>	<i>Konsep MI</i> can serve as a guide in categorizing word classes.
<b>A2</b>	<i>Konsep MI</i> represents a new innovation in word class categorization.
<b>A3</b>	<i>Konsep MI</i> facilitates students in categorizing word classes without errors.
<b>A4</b>	<i>Konsep MI</i> creates an interactive learning environment among students.
<b>A5</b>	<i>Konsep MI</i> achieves the concept of 21st-century learning (PAK21).

The threshold value (d), expert consensus percentage, defuzzification and expert consensus for the utilization of the *Konsep MI* in determining word classes through Fuzzy Delphi Method analysis are shown in Table 4.

Table 4

*Analysis of Expert Consensus on Fuzzy Delphi Method*

Item	Triangular Fuzzy Numbers		Defuzzification Process	Expert Consensus
	Threshold value (d)	Percentage of Experts Group Consensus, %	Fuzzy Score (A)	
<b>A1</b>	0.098	100%	0.760	Accepted
<b>A2</b>	0.128	100%	0.740	Accepted
<b>A3</b>	0.139	100%	0.730	Accepted
<b>A4</b>	0.078	100%	0.770	Accepted
<b>A5</b>	0.098	100%	0.760	Accepted

Based on the findings, all items have value of threshold less than 0.2 which in line with the condition explained by (Cheng & Lin, 2002). This result shows that all of these items have gained the expert consensus. Besides that, the percentage of experts group consensus indicated that all items have achieved 100% and all defuzzification values of fuzzy score for each item also exceed 0.5. These findings demonstrate that all content items of the *Konsep MI* have obtained expert consensus, meeting the specified criteria. The items are sorted based on the priorities in developing the *Konsep MI* as shown in Table 5.

Table 5

*Items sort by ranking of items for FDM*

Ranking	Item	No.
1	<i>Konsep MI</i> creates an interactive learning environment among students.	A4
2	<i>Konsep MI</i> achieves the concept of 21st-century learning (PAK21).	A5
3	<i>Konsep MI</i> can serve as a guide in categorizing word classes.	A1
4	<i>Konsep MI</i> represents a new innovation in word class categorization.	A2
5	<i>Konsep MI</i> facilitates students in categorizing word classes without errors.	A3

The findings clearly indicate that the development of the *Konsep MI* has been approved as a guide that assists students and is an innovative concept in word class determination. Based on the results, the statement that *Konsep MI* is capable of creating an interactive learning environment has reached the lowest threshold value (d), proving expert agreement on *Konsep MI*'s ability to serve as a catalyst for positive learning spirits, as well as a guide for word class selection. Learning a grammar rule through a method, technique, or concept facilitates the process of absorbing and retaining information in memory, especially when the target group consists of second language speaker. This is because these students master the language not inherently, so the way of teaching should be more innovative to ensure the students understand and can apply the conveyed knowledge. Additionally, experts believed that the elements incorporated in the *Konsep MI* conforming with the concept of PAK21. The concept is suitable for current generation and best for elementary level. There is no suggestion or comment from experts for any further improvements.

#### **Analysis of Expert Consensus on Word Class Signal Lights (*Lampu Isyarat Golongan Kata*) based on FDM**

Table 6 illustrates the analysis of the experts' evaluation on the items of Word Class Signal Lights based on FDM.

Table 6

*Items for the Aspect of Word Class Signal Lights*

Items	
<b>B1</b>	The Word Class Signal Lights is an effective approach in teaching and learning nouns, verb and adjectives.
<b>B2</b>	The Word Class Signal Lights assist students in understanding the functions of using nouns, verb and adjectives.
<b>B3</b>	The Word Class Signal Lights enable students to select nouns, verb and adjectives based on the given colour choices.
<b>B4</b>	The Word Class Signal Lights reinforce students' understanding of using nouns, verb and adjectives.
<b>B5</b>	The Word Class Signal Lights solidify students' comprehension in teaching and learning nouns, verb and adjectives.

The threshold value (d), expert consensus percentage, defuzzification  $\alpha$ -cut value and expert consensus regarding the suitability of Word Class Signal Lights in teaching is presented in Table 7. The Word Class Signal Lights acting as a recognition element for nouns, verb, and adjective based on the colours of the signal lights.

Table 7

*Findings of Expert Consensus on Word Class Signal Lights*

Item	Triangular Fuzzy Numbers		Defuzzification Process	Expert Consensus
	Threshold value (d)	Percentage of Experts Group Consensus, %	Fuzzy Score (A)	
<b>B1</b>	0.115	100%	0.750	Accepted
<b>B2</b>	0.139	100%	0.730	Accepted
<b>B3</b>	0.098	100%	0.760	Accepted
<b>B4</b>	0.128	100%	0.740	Accepted
<b>B5</b>	0.078	100%	0.770	Accepted

Based on the findings presented in Table 7, all items pertaining to this construct exhibit a threshold value (d) of  $\leq 0.2$ , indicating acceptance by the experts. With the percentage of expert consensus surpassing 75%, the results demonstrate that the items related to the development of *Konsep MI* have garnered maximum approval from the experts (Chu & Hwang, 2008). Furthermore, all defuzzification values for each item exceed the threshold of  $\alpha$ -cut = 0.5, signifying agreement among the experts regarding the integration of Word Class Signal Lights in *Konsep MI*. The items are prioritized as outlined in Table 8.

Table 8

*Items are ranked based on expert priority*


Ranking	Item	No.
<b>1</b>	The Word Class Signal Lights solidify students' comprehension in teaching and learning nouns, verb and adjectives.	B5
<b>2</b>	The Word Class Signal Lights enable students to select nouns, verb and adjectives based on the given colour choices.	B3
<b>3</b>	The Word Class Signal Lights is an effective approach in teaching and learning nouns, verb and adjectives.	B1
<b>4</b>	The Word Class Signal Lights reinforce students' understanding of using nouns, verb and adjectives.	B4
<b>5</b>	The Word Class Signal Lights assist students in understanding the functions of using nouns, verb and adjectives.	B2

The Word Class Signal Light serves as the foundation for recognizing the usage of nouns, verbs, and adjectives based on colour. The researcher believes that this element can strengthen students' understanding of the functions of these word classes in the Malay language. The colours red, yellow, and green on the signal lights represent nouns, verbs, and adjectives, respectively. Colours play a crucial role in learning as they have a strong appeal and can easily capture students' attention during learning. Rahmat and Fadzillah (2018) also found that the routine use of red light and yellow light helps the students to use adjectives appropriately in sentences. Besides that, the learning strategy based on VARK (visual, auditory, reading/writing, kinesthetic) has been proven to enhance the use of adjectives in students' essay writing (Mohamed & Aspar, 2017). In this regard, integrating students' existing experiences with signal lights into learning the concept of using word classes can assist students in comprehending the conveyed knowledge effortlessly. Furthermore, experts concur that the elements integrated into Word Class Signal Lights are suitable for elementary school children. However, some have proposed several enhancements, as indicated in Table 9.



Table 9

Improvements to the Word Class Signal Lights following expert suggestions.

Suggestion by expert	
1. Recommended to insert symbols of nouns, verb and adjective on the signal lights.	
Prototype	Final Product
	

### Analysis of Expert Consensus on *Orang Adjektif* based on FDM

The analysis of the experts' evaluation on the items of *Orang Adjektif* based on FDM is listed in Table 10.

Table 10

Items for the Aspect of *Orang Adjektif*

Items	
<b>C1</b>	<i>Orang Adjektif</i> is a new innovation to remember the 9 types of adjectives.
<b>C2</b>	<i>Orang Adjektif</i> helps students to easily remember the 9 types of adjectives.
<b>C3</b>	<i>Orang Adjektif</i> creates a cohesive element in teaching and learning.
<b>C4</b>	<i>Orang Adjektif</i> stimulates students' interest in learning adjectives.
<b>C5</b>	<i>Orang Adjektif</i> enables students to master adjectives more interactively.

The threshold value (d), expert consensus percentage, defuzzification  $\alpha$ -cut value and expert consensus regarding the aptness of *Orang Adjektif* in teaching is presented in Table 11.

Table 11

*Findings of Expert Consensus on Orang Adjektif.*

Item	Triangular Fuzzy Numbers		Defuzzification Process	Expert Consensus
	Threshold value (d)	Percentage of Experts Group Consensus, %	Fuzzy Score (A)	
C1	0.029	100%	0.790	Accepted
C2	0.098	100%	0.760	Accepted
C3	0.055	100%	0.780	Accepted
C4	0.115	100%	0.750	Accepted
C5	0.078	100%	0.770	Accepted

The findings indicate that the threshold value (d) for each item outlining the application of the *Orang Adjektif*, which serves as a tool for remembering the nine types of adjectives, does not exceed 0.2 (Table 11). The analysis results demonstrate that all items have achieved 100% expert consensus, and the  $\alpha$ -cut value also exceeds 0.5. This clearly indicates that all items in the *Orang Adjektif* have obtained expert consensus, fulfilling the established criteria.

Next, the prioritized items are ranked based on experts' opinion (Table 12).

Table 12

*Item to construct Orang Adjektif sorted by experts' priority.*

Ranking	Item	No.
1	<i>Orang Adjektif</i> is a new innovation to remember the 9 types of adjectives.	C1
2	<i>Orang Adjektif</i> creates a cohesive element in teaching and learning.	C3
3	<i>Orang Adjektif</i> enables students to master adjectives more interactively.	C5
4	<i>Orang Adjektif</i> helps students to easily remember the 9 types of adjectives.	C2
5	<i>Orang Adjektif</i> stimulates students' interest in learning adjectives.	C4

The technique of the *Orang Adjektif* aids in recalling the 9 types of adjectives by utilizing illustrations corresponding to the initial letter of each type. By integrating language activities with other components, it fosters students' interest in learning and actively engages their cognitive processes, facilitating rapid absorption of new knowledge. Consequently, the drawing activity associated with the *Orang Adjektif* was devised to assist students in memorizing the 9 types of adjectives, following an identification of students' weaknesses in adjective usage through a written test on word classes. This innovation has garnered consensus among experts as a novel approach in grasping grammatical concepts, deemed of utmost importance. Furthermore, experts affirm that the elements integrated within the Adjective Person technique align with the principles of 21st-century learning and are conducive to the developmental stage of elementary school students. Notably, no additional enhancement suggestions were provided by the experts for this element.

#### **Analysis of Expert Consensus on Pyramid NAsKp Model element based on FDM**

The analysis of the experts' evaluation on the items of Pyramid NAsKp Model based on FDM is listed in Table 13.

Table 13

*Items for the Aspect of Pyramid NAsKp model*

Items	
<b>D1</b>	The Pyramid NAsKp model facilitates students in categorizing nouns, verbs, and adjectives more easily.
<b>D2</b>	The Pyramid NAsKp model fosters critical thinking among students through exploration of nouns, verbs, and adjectives based on objects around them.
<b>D3</b>	The Pyramid NAsKp model highlights students' creativity.
<b>D4</b>	The Pyramid NAsKp model enables students to explore new words through cooperative learning.
<b>D5</b>	The Pyramid NAsKp model strengthens students' understanding of categorizing word groups based on word meanings.

The threshold value (d), expert consensus percentage, defuzzification and expert consensus for the introduction of the Pyramid NAsKp model in determining word classes through Fuzzy Delphi Method analysis are shown in Table 14.

Table 14

*Findings of Expert Consensus on Pyramid NAsKp model*

Item	Triangular Fuzzy Numbers		Defuzzification Process	Expert Consensus
	Threshold value (d)	Percentage of Experts Group Consensus, %	Fuzzy Score (A)	
<b>D1</b>	0.147	100%	0.720	Accepted
<b>D2</b>	0.151	100%	0.710	Accepted
<b>D3</b>	0.153	100%	0.700	Accepted
<b>D4</b>	0.139	100%	0.730	Accepted
<b>D5</b>	0.115	100%	0.750	Accepted

The results from Table 14 revealed that the threshold value (d) for each item, delineating the implementation of the Pyramid NAsKp Model as an exploratory element for nouns, verbs, and adjectives based on objects, remains below 0.2. Analysis further demonstrates that all items have garnered a 100% consensus among experts, with the Defuzzification  $\alpha$ -cut value surpassing 0.5. These findings clearly affirm that all components within the Pyramid NAsKp Model have secured expert consensus, adhering to the predefined criteria. All the items are arranged in order of priority as shown in Table 15.

**Table 15**

*Item to construct Pyramid NAsKp model sorted by experts' priority.*

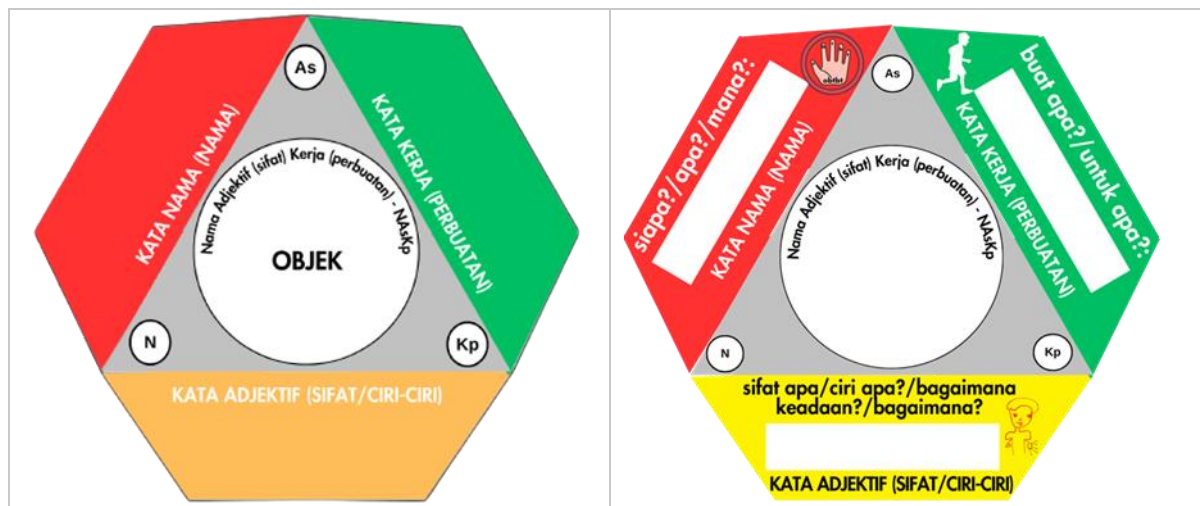
Ranking	Item	No.
1	The Pyramid NAsKp model strengthens students' understanding of categorizing word groups based on word meanings.	D5
2	The Pyramid NAsKp model enables students to explore new words through cooperative learning.	D4
3	The Pyramid NAsKp model facilitates students in categorizing nouns, verbs, and adjectives more easily.	D1
4	The Pyramid NAsKp model fosters critical thinking among students through exploration of nouns, verbs, and adjectives based on objects around them.	D2
5	The Pyramid NAsKp model highlights students' creativity.	D3

The Pyramid NAsKp Model has been developed to enable students to identify nouns, verbs, and adjectives based on surrounding objects, emphasizing the meaning of words. This model was devised as a solution to address the vocabulary limitations among second language learner, identified through written tests on word classes and observations in the classroom. Consequently, the model serves as an interactive agent, allowing students to explore objects around them and identify nouns, verbs, and adjectives based on the names, functions, and characteristics of these objects. Experts concur that this model can reinforce students' understanding of word classification, holding the highest priority. Furthermore, they believe that the elements incorporated in the Pyramid NAsKp Model can assist students in exploring a wider range of words comprising nouns, verbs, and adjectives, suggesting several enhancements as outlined in Table 16 for further refinement purposes.

**Table 16**

*Improvements to the Pyramid NAsKp Model following expert suggestions.*

Suggestion by expert	
<ol style="list-style-type: none"> <li>1. Utilize bright yellow colour for the adjective section.</li> <li>2. Include questions related to the objects.</li> <li>3. Embed symbols representing nouns, verbs, and adjectives on the model to improve students' comprehension of the subject.</li> <li>4. Allocate space for students to jot down their answers.</li> </ol>	
<b>Prototype</b>	<b>Final Product</b>



### Analysis of Expert Consensus on *Cam Kata* Game based on FDM

The analysis of the experts' evaluation on the items of *Cam Kata* Game based on FDM is listed in Table 17.

Table 17  
Items for the Aspect of *Cam Kata* Game.

Items	
<b>E1</b>	The <i>Cam Kata</i> Game facilitates word class categorization.
<b>E2</b>	The <i>Cam Kata</i> Game enhances students' mastery of word classes.
<b>E3</b>	The <i>Cam Kata</i> Game centered on materials, incorporates elements of educational entertainment into teaching and learning activities.
<b>E4</b>	The <i>Cam Kata</i> Game encourages self-directed learning among students.
<b>E5</b>	The <i>Cam Kata</i> Game solidifies students' understanding of word class categorization based on affix criteria.

The threshold value (d), expert consensus percentage, and Defuzzification  $\alpha$ -cut value regarding the suitability of implementing the *Cam Kata* game in teaching are presented in Table 18.

Table 18  
Findings of Expert Consensus on *Cam Kata* Game.

Item	Triangular Fuzzy Numbers		Defuzzification Process	Expert Consensus
	Threshold value (d)	Percentage of Experts Group Consensus, %	Fuzzy Score (A)	
<b>E1</b>	0.078	100%	0.770	Accepted
<b>E2</b>	0.139	100%	0.730	Accepted
<b>E3</b>	0.128	100%	0.740	Accepted
<b>E4</b>	0.147	100%	0.720	Accepted
<b>E5</b>	0.055	100%	0.780	Accepted

The findings from Table 18 indicated that the threshold value (d) for each item outlining the implementation of the *Cam Kata* game as a material-assisted activity to reinforce students'

understanding of the types of affixes in forming nouns, verbs, and adjectives does not exceed 0.2. The analysis results demonstrate that all items have achieved 100% expert consensus, and the defuzzification  $\alpha$ -cut value also exceeds 0.5. This clearly indicates that all content items of the *Cam Kata* game have obtained expert consensus, meeting the established criteria. The items are arranged according to priority in Table 19.

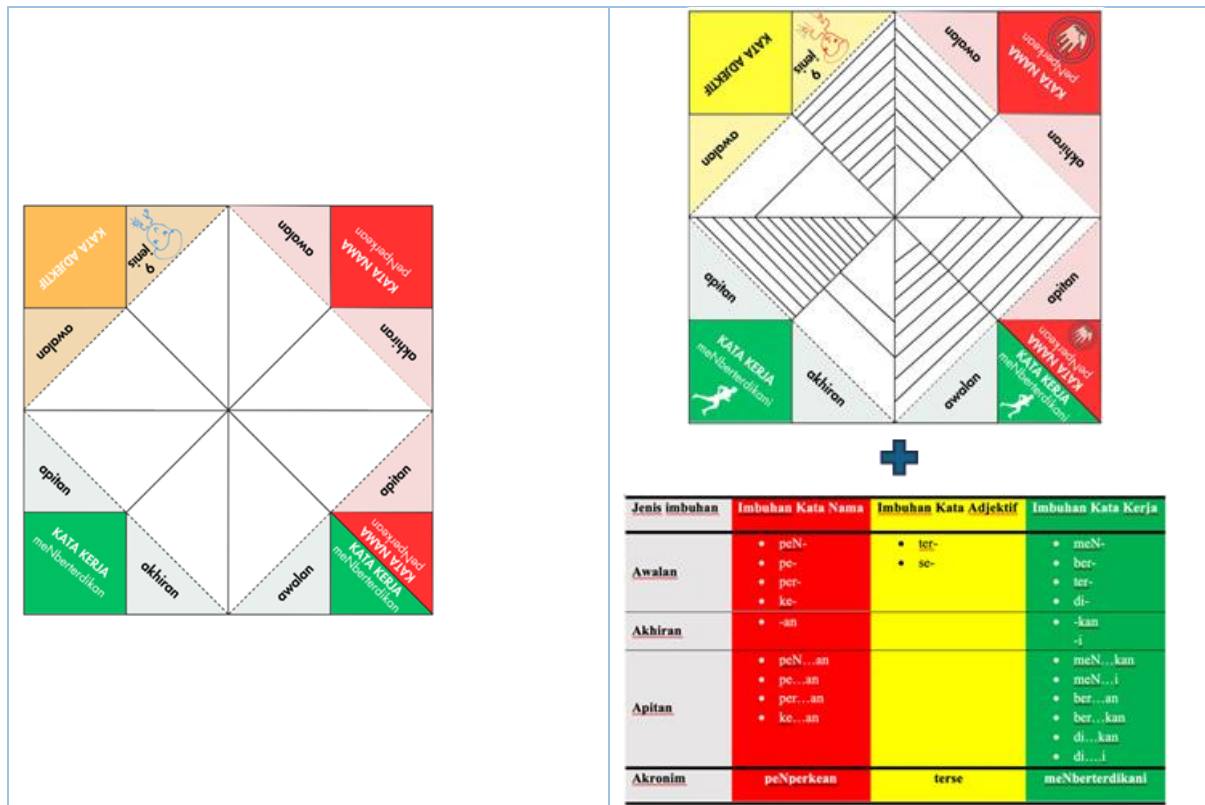
Table 19

*Item to design Cam Kata Game sorted by experts' priority.*

Ranking	Item	No.
1	The <i>Cam Kata</i> Game solidifies students' understanding of word class categorization based on affix criteria.	E5
2	The <i>Cam Kata</i> Game facilitates word class categorization.	E1
3	The <i>Cam Kata</i> Game centered on materials, incorporates elements of educational entertainment into teaching and learning activities.	E3
4	The <i>Cam Kata</i> Game enhances students' mastery of word classes.	E2
5	The <i>Cam Kata</i> Game encourages self-directed learning among students.	E4

The development of the *Cam Kata* game stemmed from students' struggles in identifying word classes, particularly nouns and adjectives with affixes. Given the diversity of affixes that form nouns, verbs, and adjectives, a specialized approach was deemed necessary to assist students in mastering them. Thus, the decision was made to create material-assisted activities that could be gamified, allowing students to complete game templates based on the colours of the Word Class Signal Lights for each word class, including the correct affixes. Additionally, students were provided with acronym affixes for each word class to aid in memory recall. Subsequently, students could fold these templates and engage in peer-to-peer gameplay, using them as reference materials while identifying word classes based on affixes. Experts concur that this game has the potential to enhance students' understanding significantly, given its multifunctionality within a single aspect, and thus, it has been given the highest priority. Furthermore, experts have proposed several enhancements to facilitate the implementation process of the *Cam Kata* game, especially among non-native speakers (Table 20).

Suggestion by expert	
<ol style="list-style-type: none"> <li>1. Change to bright yellow colour for the adjective section.</li> <li>2. Embed symbols representing nouns, verbs, and adjectives on the game board to improve students' comprehension of the subject.</li> <li>3. A table listing all affixes based on word classes should be provided as guidance</li> <li>4. Lines should be drawn on the empty space to enable students to write their answers neatly.</li> </ol>	
Prototype	Final Product



All suggestions from experts have been carefully considered and incorporated to enhance the visual representation of the *Konsep MI*, ensuring its effectiveness in aiding teachers and students with word class identification (Figure 2).

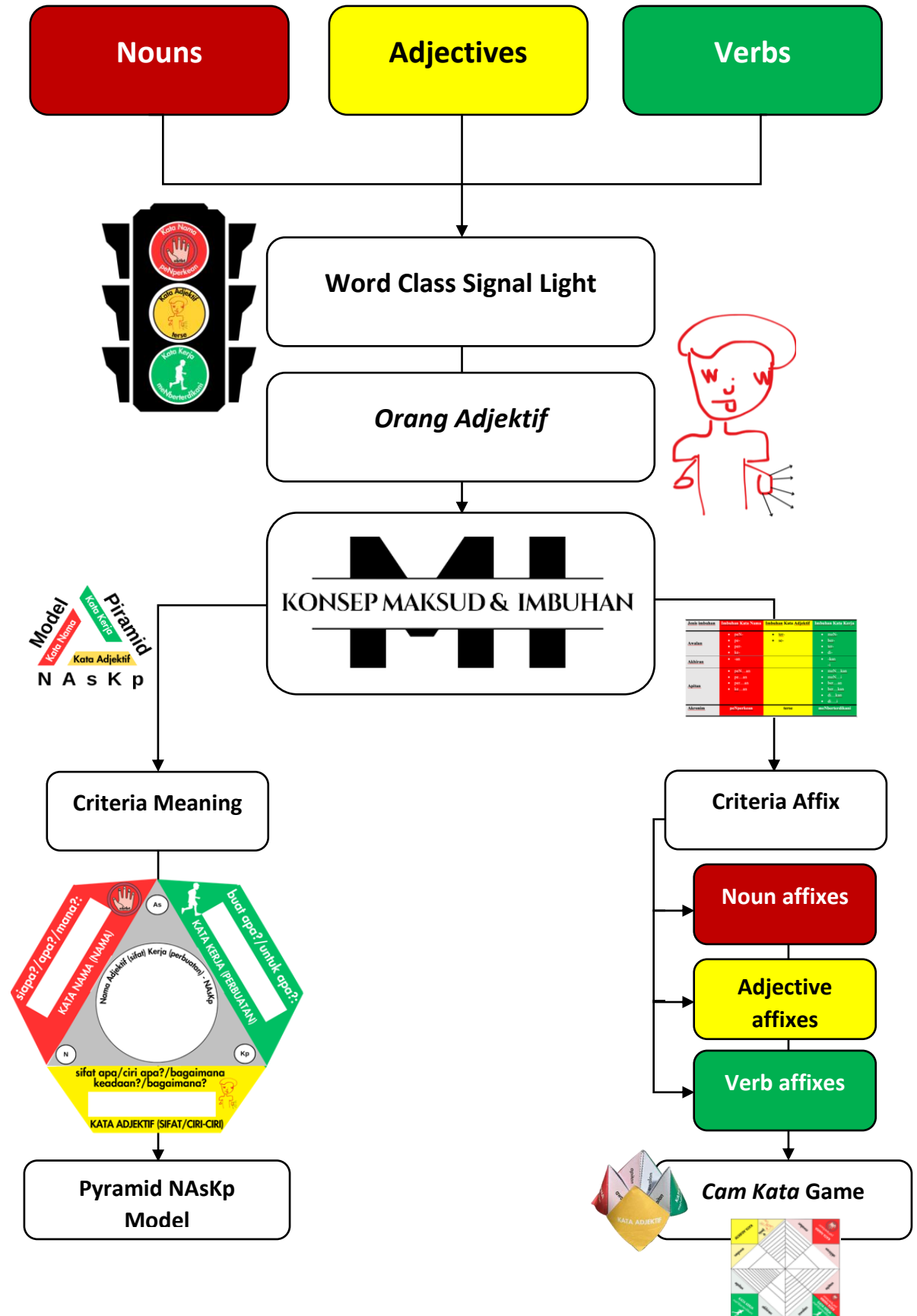


Figure 2. The detailed implementation framework of the *Konsep MI* following these modifications.



**Conclusion**

Acquisition of word class identification skills are crucial for students to understand and learn more complex grammar rules as they progress to secondary education. Despite this, there has been a noticeable lack of attention towards providing a comprehensive guide for word class identification. In response, the researcher has developed the *Konsep MI*, comprising Word Class Signal Lights, *Orang Adjektif*, Pyramid NAsKp Model, and *Cam Kata* game, as a learning kit to assist educators in conducting teaching and learning activities using teaching aids. With the agreement and input of a group of experienced experts on the *Konsep MI* and its accompanying elements, it ensures suitability for primary school students, especially those in SJK(T).

This facilitates the absorption of new knowledge in an enjoyable learning atmosphere and promotes student-centered learning practices. This is crucial as teacher-centered learning, involving only auditory senses and the "chalk and talk" method, has been shown has been found to induce boredom and disinterest among students during learning session (Norlela Ahmad & Shamsudin Othman, 2020). Hence, the implementing of effective strategies and methods, especially in Malay language learning as a second language, is necessary to enhance students' language skills. In this context, students not only require a guiding concept but also suitable learning strategies to attain teaching objectives. Each element incorporated in the *Konsep MI* effectively addresses word class identification challenge and forms an integrated educational approach incorporating colour, illustrations, models, and games.

The implementation of activities in *Konsep MI* also applies elements of critical thinking, creativity, communication, cooperative and pure values that directly enable teachers to handle PdP towards PAK21. In addition, the findings of this study directly give teachers an idea to develop their own techniques, methods or concepts based on the problems of Malay language proficiency that can be identified among students based on the level of development of their respective students' minds. This is because teachers being the individuals that spend the most time with the students and are aware of the students' weaknesses and advantages in some aspect of language. Therefore, building innovation in the methods of teaching and learning the Malay language must always be active, especially among teachers, to be able to keep up with the rapidly changing world of education in the 21st century. Overall, applying a new concept in teaching and learning not only enhances students' language proficiency but also enables non-native speakers to identify word classes, serving as a guide for students and Malay language subject teachers. The *Konsep MI* represents as a pioneering innovation in word class identification.

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