



## Microlearning Framework in Thematic Teaching Based on Hy-Flex Approach at the Indonesian Primary School

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**Abstract:** Hy-Flex approach provides space for teachers and students to optimize their potential during the education process. Learning in primary schools requires a framework that can accommodate the mapping of learning needs, especially in Indonesia, with the diversity and demands of the proclaimed competencies. This research aims to formulate a microlearning framework in thematic teaching based on the Hy-Flex approach at the primary school level in Indonesia. This research uses a meta-synthesis research method with a meta-aggregation approach to research within the last 15 years. Data were analyzed by elaborating on topics, selecting research, categorizing findings and synthesizing themes to produce research answers. The results of this study reveal that the framework of microlearning is divided into three things: nature, characteristics, and methods. As a complement, this research also presents a sample of microlearning in grade 3. This research has an added value in the form of an acronym for microlearning characteristics (MAKOKODESI) and microlearning development methods (IKUT). This research recommends a number of studies that encourage the development of microlearning teaching materials in primary schools from grade 1 to grade 6.

## INTRODUCTION

A number of terms in education are constantly evolving in line with developments in information technology. Hy-Flex is a development term for a hybrid learning approach

(both synchronous and asynchronous offline and online integrated learning) and flexibility (learning through material) (Eyal & Gil, 2022). The Hy-Flex approach allows teachers and students to optimize their potential during the



educational process. As for Hy-Flex itself, it gives freedom to students to choose three possible choices formed in this Hy-Flex approach system: face-to-face, virtual face-to-face, or asynchronous material.

Hy-Flex as an approach even provides space for educational units to choose a learning approach with a certain basis (Wilson & Alexander, 2021) namely subjects, thematic, or integrated. This is in line with the changes to the Merdeka curriculum set by the government to improve the quality of education. The choice of learning approach is, of course, still in the corridor of the curriculum structure that is determined by adjusting the management of learning time. Furthermore, the curriculum structure refers to the main course containing the attribute for the profile of Pancasila students.

Teaching in elementary schools (SD) is definitively carried out by teachers as agents who encourage students to learn. While learning is carried out by students as agents who experience the learning process. Teachers can optimize their role as facilitators in learning to students

synchronously (face-to-face/virtual). Moreover, learning in elementary schools prioritizes integrating material with thematic concepts (Malawati & Kadarwati, 2017). This thematic teaching design is meant for primary school students to feel the learning experienced as a union. Of course, this is different from the primary school curriculum in Indonesia before 2013, which contained a number of quantitative subjects that had to be mastered.

Without intending to forget the history of curriculum development, the determination of the SD curriculum in the last 15 years has taken two approaches. Learning approaches before 2013 were based on science, social studies, languages, mathematics, etc. Meanwhile, the learning approach from 2013 to 2022 will switch to thematic teaching concepts. In 2023, updating the curriculum will be based on readiness and reference to learning models that have been developed. As a result, in 2023 through Merdeka curriculum, the teaching approach gives freedom to students (Rahmadayanti & Hartoyo, 2022) through three choices: subjects, thematic, and integration.

The freedom to choose a teaching approach requires the fulfillment of a number of criteria that must be met. One of them is the readiness of the education unit to provide teaching technology aids which can be a learning management system (Learning Management System/LMS), likewise, with the use of Hy-Flex as a basic reference for learning approaches. Hy-Flex makes it easier for teachers to implement comprehensive learning for students. Of course, the teachers aim to meet the demands of graduate competencies stated in the school curriculum. In other words, the teacher not only prepares synchronous learning materials but also prepares students' learning potential material asynchronously.

Indonesia, with the current learning system in primary schools, reveals various phenomena. Parents, as part of the stakeholders, are complaining about the quantity of materials that students must learn (Nuriana & Adelina, 2021). In line with that, the teacher admits that not all students have the same speed and ability to understand the material. However, the curriculum demands require teachers to provide learning material thoroughly to achieve

predetermined competencies. Moreover, a number of other factors that also influence the learning process, such as limited parental support, effortless school support, and other obstacles, can impact unoptimized student learning.

The phenomenon regarding learning barriers is trying to be answered by a number of studies. Several studies have developed from the point of view of learning media packaged through smartphone applications (Ningrum & Prastowo, 2022) android-based learning media (Bala & Wardani, 2022), animated videos (Adri et al., 2020), textbooks (Pratiwi, 2020) story books based on local languages (Makarim et al., 2018), comics (Amelia, 2018), educational games (Fantiro, 2018). These studies do partially answer the barriers to learning. The problems in primary schools, of course, require another framework for identifying the matters. Then by the framework, research related to teaching learning in primary schools will have a direction.

Therefore, learning in primary schools requires a framework that can accommodate the mapping of learning needs, especially in Indonesia, with the

diversity and competency demands proclaimed by the government as an effort to equalize national education. The formulation of the framework requires a basic learning approach model that supports the flexibility of the learning process.

Formulating a learning framework to map problems in primary schools can be done by outlining macro, meso, and microlearning. All three will provide a complete picture of educators and researchers describing the problem. If the problem is easily identified, then solving the problem will be dealt with faster.

In particular, this study focuses on sections of microlearning, given related research microlearning aligned with the needs of the independent curriculum. So far, the top research microlearning has revealed the stages of production of teaching materials (Ariani et al., 2022) which are carried out in tertiary institutions with a number of media formats (Nugraha et al., 2021). In addition, the basic use of microlearning in developing learning has been carried out at the junior high school level for science subjects (Adhipertama et al., 2020) and for

mathematics subjects (Simanjuntak & Haris, 2023).

Based on the information above, research regarding the microlearning framework, especially in Indonesia, has never been done at the primary school level. Moreover, existing research is still about using technology in packaging learning materials. In this regard, the position of this research has a novelty in the form of microlearning mapping in primary schools. Therefore, this study aims to formulate a framework for microlearning in thematic teaching based on the Hy-Flex approach at the elementary school level in Indonesia. As a sample, spread microlearning using thematic teaching in grade 3.

#### **METHOD**

This study uses a meta-synthesis research method with a meta-aggregation approach to research in the last 15 years (2008–2022). The synthesis research method is included in the qualitative research approach to analyze across qualitative studies (Erwin et al., 2011). There are two approaches to meta-synthesis in implementing the method, namely meta-ethnography, which aims to uncover new theories, and meta-

aggregation, which categorizes findings based on conceptual research.

The subject of this study was research from 2008 to 2022. Data were analyzed by elaborating on topics, selecting research, categorizing findings, and synthesizing themes to produce research answers (Pigott & Polanin, 2020). Testing the validity of the results is done by triangulation of sources. In other words, any findings are referred to other article sources.

In answering the research questions, the formulation of the framework is answered by revealing the meta-synthesis conclusions from a number of articles. As for a more detailed formulation, the formulation of distribution is used based on the lesson plan in grade 3 from several schools in Java (10 schools), Sumatra (3 schools), Nusa Tenggara (1 school), and Papua (1 school).

## RESULT & DISCUSSION

### Result

The following in figure 1 is a framework formulation of microlearning in primary school consisting of nature, characteristics, and methods. The nature of microlearning gives an overview of what

microlearning in primary school is through its definition and philosophy. The characteristics of microlearning are namely MAKOKODESI: Mandiri (self-contained), Kontinu (reusable), Kolektif (can be grouped into larger), Deskriptif dan Informatif (Descriptive and Informative) (figure 2). Last, the method has steps based on Indonesian acronym IKUT, namely *Identifikasi* (identification), *Kategori* (category), *Urai* (analysis), and *Transform* (transformation) (figure 3). This method is the initial basis of the framework to facilitate teachers in creating microlearning.

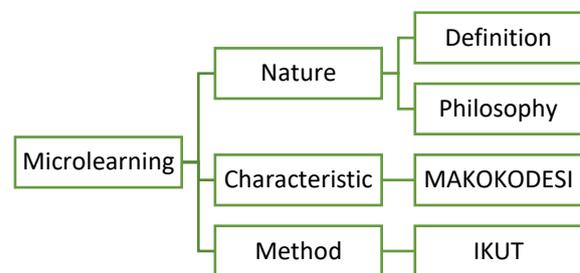


Figure 1 Framework of Microlearning

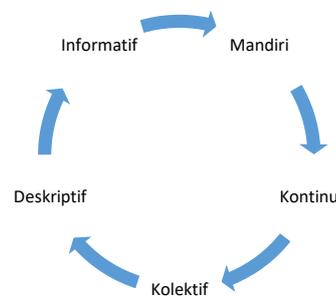


Figure 2 Microlearning Characteristics

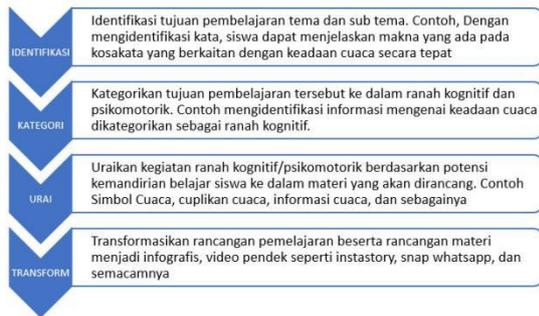


Figure 3 IKUT Method for Creating Microlearning

Table 1 Sample of Microlearning Analysis Based on IKUT Method and MAKOKODESI for Grade 3

Learning Objectives	Cognitive/ Psycomotoric	Microlearning	
		Title	Outcome
T5.ST1.1.1	Cognitive	Cuaca dan Simbol Cuaca	Infographic
T5.ST1.3.6	Psycomotoric	Kulihat Awan	Lyric Video
T7.ST3.3.3	Cognitive	Sejarah Telepon	Slide Video
T7.ST3.4.4	Cognitive	Alat komunikasi	Infographic

**Discussion**

**Nature of Microlearning in the Learning Process**

Teaching and learning synergize with each other so as to form an educational ecosystem that interacts with each other. The learning process should be more dominant in students so that students are trained to get used to always getting information. For this reason, schools, through teachers need to work around student learning schemes by microlearning.

Microlearning is an approach that focuses on a single concept, utilizing multisensory and multimodality in a

short-focused time (Dolasinski & Reynolds, 2020). Current technological advances, of course, can require the outcome of microlearning because of the tendency of students to get information in a short, precise, and solid way. This information is generally a description of knowledge that is used continuously and can fully explain the details of the information contained.

The existence of this information can actually replace the teacher's role as a source of learning in schools. As a consequence, this information can give rise to a variety of student perceptions considering that the information circulating still requires validation stages to test its validity against learning support. In other words, circulating information requires an agent, in this case, the teacher, whose job is to filter information according to the developmental needs of students.

The learning given at school consists of two schemes, namely synchronous and asynchronous learning (Ibda, 2022). Synchronous learning requires interaction both directly and virtually. This synchronous learning follows everything that has been written in the curriculum as

described in the Lesson Plan (RPP). The learning model, as illustrated, can be said to be macrolearning.

Meanwhile, the RPP has a number of activity syntaxes that are sustainable from previous activities as basic information. The material in the previous activity was expected by the teacher to be studied again by students at home independently. This independent student activity is called asynchronous learning so that the learning activities on the next day will be followed by students properly.

For this reason, the teacher must prepare a scheme that can make student independent learning successful, namely microlearning. Microlearning supports asynchronous learning (Susilana et al., 2022) because it can contain information that supports the synchronous macrolearning process at school.

From a philosophical point of view, microlearning is part of the conceptual process of developing and managing knowledge. It contains elements of habitus, attitudes, values, mentality, emotional reactions, social dynamics, and cognitive structure of student

performance, in simple terms in table 2 below.

*Tabel 2 Concept of Micro-Meso-Macrolearning Adaptation (Hug, 2005)*

Level	Categori 1 Teaching Materials	Categori 2 Subject Curriculum
Macro	Theme	Curriculum Structure
Meso	Sub theme	Subject
Micro	Learning Objectives	Core and Basic Competencies

Based on the table, it is known that microlearning is interpreted as a level that is below the macro and meso levels. In category 2, the subject curriculum study has a curriculum structure at a macro level, subjects at the meso level, and KI/KD at the micro level, especially in category 1 which is related to thematic learning. Teaching Materials at the macro level are understood as Themes. The theme has a number of sub-themes (meso); The sub themes have a number of microlearning based on learning objectives. In other words, microlearning in primary schools can be identified through learning objectives to be further developed into asynchronous learning materials of microlearning.

### **Characteristic of Microlearning as a Supporter of Thematic Teaching**

Microlearning as a system that supports asynchronous learning, of course has a role. Microlearning, if viewed as a learning entity, requires distinguishing characteristics of microlearning itself with others. The characteristics of microlearning in this study use acronym labeling through mnemonics, namely MAKOKODESI\_Mandiri (self-contained), Kontinu (reusable), Kolektif (can be group into larger), Deskriptif dan Informatif (Descriptive and Informative).

Independent microlearning has the notion that learning material focuses on a single goal and can be applied without a time limit. A single objective can be said to be a small unit of teaching material with a duration of 5–10 minutes. As for no time, provisions meant material microlearning could be placed at the beginning, in the middle, and at the end of learning (Kapp & Defelice, 2019).

Its single nature encourages the second characteristic, namely Continuous. Deep continuous microlearning is interpreted as learning directed to continue the instructions in

it. Of course, continuous encouragement by students requires a single material that can adjust students' curiosity through assignments instruction.

The instructions given are an inclusive learning process, knowledge, and student experience. In other words, the inculcation of knowledge and experience encourages the collective nature of students' insights and scholarship. Knowledge and experience, of course, can develop automatically during learning. As for the collective characteristics of microlearning, this forces the developer of the material microlearning to always develop the stages of instruction gradually and to enable potential gamification.

To facilitate the acceptance of instructions in microlearning, other characteristics are needed, namely descriptive and informative presentation. Descriptive and informative can be seen from the choice of words that can build visualization in students' minds. While side the information can be found through the presentation of functional material (Siregar et al., 2021). Functional

material can be interpreted as helpful information, not using long-winded words or images that are not related to the content of the material.

### **IKUT Method as a Procedure to Create Microlearning Based on Hy-Flex**

Hy-Flex learning needs macro and microlearning. Macrolearning, as stated in table 2, refers to curriculum structure and the theme of material content. While microlearning refers to KI/KD and Learning objectives. Macrolearning is set by the teacher in class sessions and delivered based on the syntax stated on RPP. To support the quality of learning, some macros need microlearning. Separating micro from macrolearning will be beneficial as the student can have more quality time in macro for skill and more frequency in assessing microlearning materials for their knowledge.

However, microlearning is commonly used in asynchronous learning as learning aids for students that can be accessed anytime and anywhere. The teachers give only instructions on what the students need to access and study at home. Later in the class, the students are already prepared

with their basic knowledge of macrolearning.

Microlearning requires a design that can be scientifically measured as a supporter of student competency achievement. Achievement of students' core competencies can be done by fulfilling the competence-base. Furthermore, these basic competencies will be described through basic competency indicators. Furthermore, competency indicators can be formulated with a number of learning objectives.

Based on the decomposition process competence being the learning objectives above, the teacher can create asynchronous material with the IKUT method as microlearning. IKUT consists of identification, category, description, and transformation. This method can be applied to various media, both digital and print.

As a starting point for the IKUT method, the identification stage encourages the teacher to analyze the learning objectives of the themes and sub-themes. Both the theme and the sub-theme contribute to the context of the material to be created. At the same time, the teacher can make limits in the

preparation of material based on the psychology and sociology of student development.

For example, one of the learning objectives in grade 3 is that students can precisely explain the meaning in vocabulary related to weather conditions by identifying words. The material on the learning objectives informs the teacher that students get new vocabulary and related meanings in the context of weather for ages 9–10 years.

The second stage is a category that is intended to facilitate teachers in packaging instructions inside the material. For example, in the learning objectives regarding the weather conditions above. This learning targets the cognitive side; for that, the teacher can determine in selecting titles and selecting vocabulary that encourages activities in the cognitive taxonomy of both C1 to C6.

The third stage is the description which requires the teacher to design material from the title, content, selection of information, and diction, to the confirmation stage. The identification of the material is a representation of the content of the material. The selected

information must take into account psychological and social developments. This psychological consideration can be in the form of animated images or those still in the logic of children aged 9-10 years. Furthermore, sociological considerations can be in the form of informed choices that refer to a location. For example, Indonesia only has two seasons, so you shouldn't use the snow symbol.

The fourth stage, transform, is the final step in creating microlearning. The transformation itself is understood as an embodiment effort. In fact, this is media development through media design microlearning so far, the transformation of learning media that can be used microlearning including (1) infographic flyers/posters, (2) podcasts, (3) slides, (4) animated videos, and (5) Scribe/explainer videos.

For example, still use examples of learning objectives of weather conditions. Teachers can prepare information as shown in Figure 1.

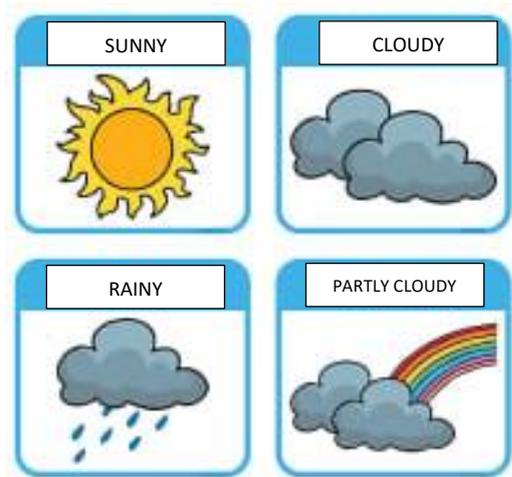


Figure 4 Indonesian Weather Conditions

Students can easily learn weather conditions through presentations that students can see. Experience based on students' discovery of seeing information, as shown in Figure 4, will certainly be much more embedded in themselves than students getting information from the teacher's oral exposure.

### CONCLUSION

An independent curriculum tends to encourage schools, especially teachers, to do more prepare students to achieve better student competencies by utilizing technological advances. The learning scheme has also changed with the concept of independent learning directed by the Ministry of Education and Culture, namely to provide space for students to gain self-learning through Hy-Flex learning. While learning in elementary school is to

maintain the public interest that student learning is still integrated, it still uses thematic learning. For this reason, teachers are encouraged to prepare a number of micro-sized learning sets.

This study succeeded in answering the research objective: formulate a framework for microlearning in thematic learning based on the Hy-Flex approach at the elementary school level. The results of this study reveal the framework of microlearning is divided into three things: nature, characteristics, and methods. This study also presents a sample of microlearning in 3rd grade as a compliment. This research has added value in the form of an acronym for the characteristics of microlearning (MAKOKODESI) and development methods of microlearning (IKUT). This study recommends a number of studies that encourage the development of teaching materials of microlearning in elementary schools from grade 1 to grade 6.

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