


## Construction of EFL Learning Object Materials for Senior High School

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Article Info	Abstract
<p><b>Article history:</b> Received 2 Agustus 2022 Publish 8 November 2022</p> <hr/> <p><b>Keywords:</b> English Learning Object Materials LOM Microlearning Senior High School</p> <hr/> <p><b>Corresponding Author:</b> Diah Ayu Ika Kartika, MNC University Email: <a href="mailto:diahayu.ikakartika@mncu.ac.id">diahayu.ikakartika@mncu.ac.id</a></p>	<p><i>The realm of teaching has shifted into another paradigm in this era. Many initiatives in education bring all aspects into to-the-point and instant teaching-learning process. Other than that, English teaching-learning activity faces huge obstacles. Hence, learning object materials appeared to be the promising solution to this matter since it brings ease for both educators and learners. Learning object materials create simple and clear teaching-learning process. Thus, this study aims at describing the processes of composing Learning Object Materials and formulating the proposed Learning Object Materials based on Curriculum 2013. This study designed to focus on proposing EFL learning object materials for Senior High School of twelfth graders. A content analysis employed as the method of this study. The result showed seven stages on constructing the learning object materials. The learning object materials proposed were video, presentation, PDFs, animation, infographics, gamification, and quiz.</i></p> <hr/> <p><i>This is an open access article under the <a href="https://creativecommons.org/licenses/by-sa/4.0/">Lisensi Creative Commons Atribusi-BerbagiSerupa 4.0 Internasional</a></i></p> 

### 1. INTRODUCTION

To-the-point and instant teaching-learning process demands the educational field to have more suitable and simple learning resources [1]. As clearly mentioned above, teachers must be able to figure out and determine the appropriate learning resources for their teaching materials to be delivered to their students. The availability of learning resources helps students in upgrading their learning process. In educational settings that are extremely evolved, learning resources should be able to ease both teachers and students in the teaching-learning activity [2]. On top of that, to implement curriculum 2013 means that the advancement of learning resources and learning materials should be well-designed in order to fit the competency standards and basic competence of each subject, including English subject [3], [4].

As a consequence, according to Kusnandar [1], teachers should provide simple but clear learning materials for the students. That is to specifically say that learning resources must be reusable; compatible; adaptable; and flexible. Learning resources should be easy to be accessed both by the students and teachers [5]. Based on this phenomenon, it is concluded that learning resources must be more flexible. As a solution for this matter, Kusnandar [1] further implied that learning resources can be more flexible when provided in learning-objects-based. Nowadays, learning objects emerged to be more suitable as learning materials must be well-designed based on competencies of the curricula [6]. Correspondingly, Mavers [7] believed that learning objects can be integrated in the educational settings since it supplements the curriculum.

In simplest words, the availability of learning objects should be increased [1]. Teachers and learners can easily create and access the learning materials through learning objects. Besides, through learning objects, both teachers and learners will be more easily achieve the learning outcomes. Thus, not only learning-teaching process can be developed but learning objectives can be met [8]. Reigeluth & Nelson (1997) assumed that learning objects are the smallest parts of learning media. Learning objects are assembled by breaking the learning elements into constituent parts. Meanwhile, Dahl & Nygaard (1966) argued that learning objects are

components that can be reused in multiple learning contexts. This is in line with Downes [11] & Friesen (2001) who elaborated that learning objects are non-digital as well as digital entities comprise pedagogical essence which can be employed in various learning situations.

According to [13], learning objects are immensely accepted in the learning community. Learning objects could be utilized to compose learning materials. Other than that, the learning delivery would be easier. These reusable chunks of learning materials are increasingly required to help both teachers and students easier in the teaching-learning process [14]. [15] stated that learning objects depict a complete conceptual learning model. On that account, students can obtain appropriate learning resources and learning progress sense [16]. Accordingly, several studies related to learning objects have been conducted. The widespread approach of learning objects was profoundly researched.

A research done by Falloon et al. [17] discussed about learning objects and the development of students' key competencies. It was summarized that learning objects could serve students an engaging and motivating learning experience. The result of this research was supported by another study from Behar et al. [18]. The findings indicated that learning objects were clear, concise, and easy to use. Urrego & Cecilia (2019) showed that virtual learning objects could promote reading strategies in English for specific purposes environment. These virtual learning objects deployed to adjust students' needs, namely learning objectives, learning materials, and learning topics.

A study presented by Litzler et al. (2012) analyzed that learning objects were worth developing since learning objects can be used for students to advance their learning progress. Castro & Gutiérrez [21] also came up with the same results that learning objects can be deployed as a motivation and supporting learning resources that foster students' interest during the learning process. Despite that, the existence of learning objects is still limited [1]. Besides, those previous studies did not further explain the steps to create learning objects. Therefore, this study was conducted to explain the processes of composing learning objects and to formulate the learning objects. In detail, this study will focus on creating the learning object materials based on Curriculum 2013 of English Subject for twelfth graders of Senior High School. Curriculum 2013 involved four core competences which deal with attitudes and behaviors; knowledge; and skills at each subject. However, this study only focused on knowledge competence. Besides, the knowledge competence has three focuses, namely social functions; text structures; and linguistic elements [22].

## **2. LITERATURE REVIEW**

### **2.1. Learning Object Materials**

The field is still struggling in finding the correct terms for learning objects. In light with this statement, Wiley (2002) & Artha et al. (2021) clearly highlighted that the definitions of learning objects vary. Learning objects were firstly known as content objects [23], educational objects [12], information objects [24], learning components, knowledge objects [25], and media objects. Comprehensively speaking, the terminology of learning objects referred to either digital or non-digital entity.

As conceptualized by Wiley [13], learning objects are reusable chunks of learning materials. Learning objects described as digital learning resources employed to accommodate technology-based learning. He believed that learning objects can be conveyed across the network. Wiley et al. (2004) further illustrated that learning objects are digital learning materials built in a modular way. These statements are supported by Sosteric & Hesemeier (2002) as well as Wiley [24] who demonstrated that learning objects defined as digital materials with pedagogical merits to assist teaching-learning process. Meanwhile, Reigeluth and Nelson [9] clarified that learning objects are the smallest parts of learning media. It can be said that learning objects are any digital resources that can be reused to support learning process.

On the other side, learning objects are also seen as any reusable entities, both digital and non-digital materials, which can be integrated to serve teaching-learning activity [28], [29]. Likewise, Herin [30] interpreted that learning objects depict pedagogical values in the forms of non-digital and digital learning resources as long as these resources are able to contextualize learners' needs. Any reusable learning components can be carried by learning objects to promote teaching-learning environment [31]. Correspondingly, McGreal [32] enlightened that learning objects are educational elements which can be assembled and gathered to uplift teaching-learning process. In basic terms, learning objects are reusable entities or tiny pieces of learning materials used in teaching-learning process to achieve learning purposes [33], [34].

Nonetheless, ALI [35] simply put learning objects as learning materials in the educational settings. Learning objects are also viewed as learning-practice tools for teaching-learning context [36]. All the proposed definitions above portray such integral attributes of a learning object: digital and non-digital; resources; reusable; and learning. As quoted in LOM [28], the examples of learning objects include multimedia contents; learning aims; and instructional components. In agreement with this, Quinn [37] further strengthened that learning objects must consist of four subcomponents, which are 'look and feel'; functionality; learning goals; and contents.

To sum up, learning objects are framed as small chunks of instructional elements that can be implemented or reused during teaching-learning activities. Learning objects are not merely packages of learning materials employed in educational environment. Learning objects are purposely composed to escalate learners' capability in designing meaningful learning paths after mastering their understanding through learning objects.

## 2.2. Microlearning

Microlearning is a way to teach and deliver the learning content in small bits with certain purpose. Typically, the learners are in control about what they are learning [38]. Alella [39] acknowledged the similar statement as microlearning seems to be one of the methods to fulfill fast-changing information. Microlearning is composed to convey the learning process to match several factors, such self-learning; fragmentation learning; and short attention time. Microlearning manifests unique characteristic as it is a fairly short time learning process focused on certain learning objectives and planned learning activities [40]. Hug [41] affirmed that microlearning includes segmented information as it is set to suit the brain capability to process information.

Microlearning emerges as the learning instruction since it is simple and clear. It offers the flexible learning content in chunks. It emphasizes particular learning goal and characterizes brief time of learning process [42], [43]. According to Giurgiu [44], the combination of learning chunks successfully helps the students in memorizing the lesson. It is highly acceptable in this era. The integration of microlearning is helpful for the learning process [45]. It is because learners are more programmed to narrow chunks of information. Learners' minds are accustomed for smaller and consumable bits of concept [46]. Buhu [47] agreed that microlearning are designed based on narrow subjects of the lesson. It includes smaller task.

Meanwhile, Hesse [48] claimed that microlearning is a goal-oriented as it is the smaller segments of the lesson. Bradley [49] also affirmed that microlearning elements bring a little amount of concepts to explain the element precisely. Microlearning obviously save times for both learners and educators. It reduces to read all courses of single elements. Hug & Friesen [50] further explained that microlearning trims long messages into digestible nuggets information. It is a hands-on learning approach which calls up students to learn, act, and practice. Microlearning identifies specific learning aims and narrows it into small-scale of learning units.

## 3. RESEARCH METHODOLOGY

This chapter elaborated about the methodology applied in this study to gather and analyze the data. The researcher has carried out a qualitative research design. Overall, qualitative research design seeks to discover depth–understanding of a bigger picture rather than numeric analysis. Then, the data will be interpreted in a form of words.

Accordingly, in order to answer the research questions, qualitative content analysis employed in this study. To obtain the data, content analysis has been deployed to interpret meanings from the text content. Content analysis signifies a flexible approach to analyze data of the text [51]. Besides, qualitative content analysis will examine language purposes by grouping large amounts of text intensely into a classification of efficient chunk which produce whole meanings [52]. Qualitative content analysis utilized to convey knowledge and deliver understanding of the study [53].

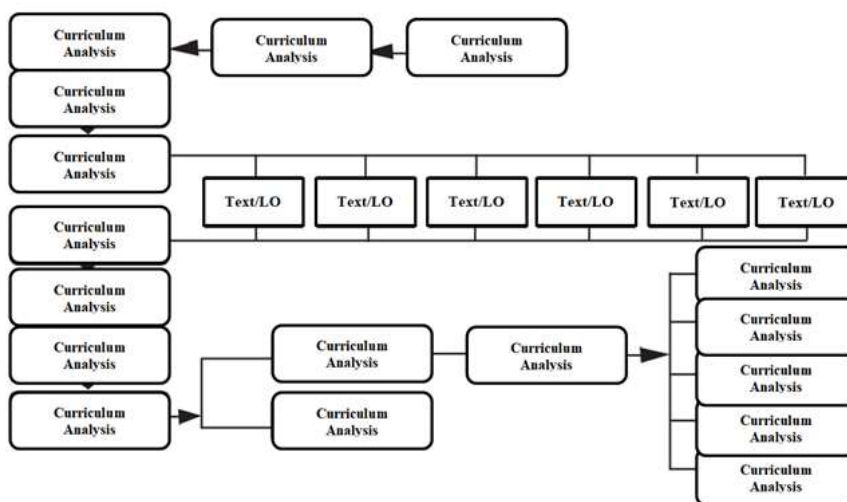
To sum up, as the method in this study, qualitative content analysis has been implemented in order to interpret the content of text data through systematic sorting process from identifying the patterns. In consequence, the result and research findings has been written systematically in this study.

Specifically, the data of this study were the basic competences of Curriculum 2013 for 12<sup>th</sup> grade Senior High School students. These data were analyzed to construct the learning object materials. The researcher then composed the learning objects based on the basic competences detailed in the course.

Meanwhile, in this study, the main research instrument was the researcher herself. The researcher has been the primary instrument since the researcher has conducted all the research process, involving gathering the data, analyzing the data, filtering the data, selecting and sorting the data, concluding the data, also reporting the data.

Research instruments in qualitative research are the researchers who examine, investigate, and explore the entire study orderly in a flexible manner. Thus, the researchers considered as key instruments of the study [54]. R. Bogdan & Biklen (1998) also clearly affirmed that human is the best instrument for qualitative research.

In order to seek answer the research questions proposed, the researcher has integrated supplementary tool, table analysis. The table has been made in Microsoft Word. This table has assisted the researcher to organize, classify, and analyze the data. The researcher has applied table analysis adapted from Kusnandar (2014) as follows.



Gambar 1

Table 1. LO Development

Basic Competence	Topic	Context	Topic Identification	Material Maps	Learning Scenario	LOM
						LO
						LO
						LO
						LO
						LO
						LO
						LO

In relation with learning object, [1] stated that the steps of developing learning objects started by identifying the topic of a course from basic competence of curriculum 2013. This topic then might establish several sub topics. From these sub topics, the learning materials have been mapped. After that, these learning materials should be contextualized based on the social function; text structure; and language features of every basic competence. Then, the structural elements of the lesson must be created. Finally, learning objects could be constructed.

In analyzing the data, first, the researcher had to categorize the basic competences into several topics. After that, these topics could be identified more specifically. Then, the researcher chunked these topic identifications into material maps. After designing the material maps, the researcher then proposed the learning object materials through a formulated table analysis.

**4. RESEARCH FINDINGS AND DISCUSSION**

This chapter exposed the research findings and discussion to seek answer of the research questions.

**4.1. Results**

These established tables show the proposed learning object materials. There are four basic competences in the first semester of Senior High School Class XII. From every basic competence, there would be three topic identifications which focus on the social function; text structures; and language features. From these topic identifications, the researcher designed 18 material maps with the proposed learning object materials.

**Table 2.** LO Development KD 3.1. 4.1



Basic Competence	Topic and Context	Topic Identification	Material Maps	Learning Scenario		LOM
				Structural Element	Instructional Method	
<p>3.1. Menerapkan fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi interpersonal lisan dan tulis yang melibatkan tindakan menawarkan jasa, serta memanggapnya, sesuai dengan konteks penggunaannya. (Perhatikan unsur kebahasaan <i>May I help you? What can I do for you? What if.....?</i>)</p> <p>4.1. Menyusun teks interaksi interpersonal lisan dan tulis sederhana yang melibatkan tindakan menawarkan jasa, dan memanggapnya dengan memperhatikan fungsi sosial, struktur teks, dan unsur kebahasaan yang benar dan sesuai konteks.</p>	Offering Service	Social Function of Offering Service	Recognizing Social Function of Offering Service	Welcome to the Lesson	Structured Overview	Interactive Video
				Awaken Prior Knowledge	Drilling Exercise	Gamification Activity
				Review Key Points	Mental Modelling	Infographics
				Content	Discovery Learning	Video
				Discussion	Direct Instruction	iPDF
				Review Key Points	Drilling Exercise	Interactive Animation
				Assessment	Reflective Discussion	Video
				Welcome to the Lesson	Cooperative Review	Presentation
				Awaken Prior Knowledge	Inquiry	Quiz
				Review Key Points	Structured Overview	Video
				Content	Inquiry	Talking Animation
				Discussion	Drilling Exercise	Mini Quiz
		Review Key Points	Discovery Learning	Infographics		
		Content	Lecture	iPDF		
		Discussion	Group Discussion	Gamification		
		Review Key Points	Question and Answer	Presentation		
		Assessment	Drilling Exercise	Mini Quiz		
		Welcome to the Lesson	Inquiry	Quiz		
		Awaken Prior Knowledge	Structured Overview	Brief Video		
		Review Key Points	Inquiry	Presentation		
		Content	Drilling Exercise	Animation		
		Discussion	Discovery Learning	Infographics		
		Review Key Points	Lecture	PPT		
		Assessment	Group Discussion	Gamification		
Welcome to the Lesson	Cooperative Review	Video				
Awaken Prior Knowledge	Question and Answer	iPDF				
Review Key Points	Inquiry	Essay Quiz				
Content	Structured Overview	Video				
Discussion	Drilling Exercise	Animation				
Review Key Points	Inquiry	Mini Quiz				
Content	Discovery Learning	Infographics				
Discussion	Lecture	Explanation Video				
Review Key Points	Direct Instruction	PPT				
Assessment	Reflective Discussion	Gamification				
Welcome to the Lesson	Collaborative Review	Interactive PDFs				
Awaken Prior Knowledge	Inquiry	Essay Quiz				

Table 3. development KD 3.2. 4.2

Basic Competence	Topic and Context	Topic Identification	Material Maps	Learning Scenario		LOM
				Structural Element	Instructional Method	
<p>3.2. Membedakan fungsi sosial, struktur teks, dan unsur kebahasaan beberapa teks khusus dalam bentuk surat lamaran kerja, dengan memberi dan meminta informasi terkait jati diri, latar belakang pendidikan/pengalaman kerja, sesuai dengan konteks penggunaannya.</p> <p>4.2.1. Menangkap makna secara kontekstual terkait fungsi sosial, struktur teks, dan unsur kebahasaan teks khusus dalam bentuk surat lamaran kerja, yang memberikan informasi antara lain jati diri, latar belakang pendidikan/pengalaman kerja.</p> <p>4.2.2. Menyusun teks khusus surat lamaran kerja, yang memberikan informasi antara lain jati diri, latar belakang pendidikan/pengalaman kerja, dengan memperhatikan fungsi sosial, struktur teks, dan unsur kebahasaan, secara benar dan sesuai konteks.</p>	Application Letter	Social Function of Application Letter	Recognizing Social Function of Application Letter	Welcome to the Lesson	General Overview (Related to suitable occupation for the students)	Animation
				Awaken Prior Knowledge	Inquiry	Video
				Review Key Points	Drilling Exercise	iPDF
				Content	Discovery Learning	PPT
				Discussion	Mental Modelling	Infographic
				Review Key Points	Direct Instruction	Animation
				Assessment	Lecture	Interactive PDFs
				Welcome to the Lesson	Group Discussion	Gamification
				Awaken Prior Knowledge	Drilling Practice	Interactive Animation
				Review Key Points	Inquiry	Quiz
				Content	Structured Overview	Video
				Discussion	Inquiry	Animation
		Review Key Points	Drilling Exercise	Mini Quiz		
		Assessment	Discovery Learning	Infographics		
		Welcome to the Lesson	Lecture	Explanation Video		
		Awaken Prior Knowledge	Group Discussion	Gamification		
		Review Key Points	Question and Answer	Video		
		Content	Drilling Exercise	Mini Quiz		
		Discussion	Inquiry	Quiz		
		Review Key Points	Structured Overview	Video		
		Assessment	Drilling Exercise	Animation		
		Welcome to the Lesson	Inquiry	Mini Quiz		
		Awaken Prior Knowledge	Discovery Learning	Infographics		
		Review Key Points	Lecture	Explanation Video		
		Content	Direct Instruction	PPT		
		Discussion	Reflective Discussion	Gamification		
		Review Key Points	Collaborative Review	Interactive PDFs		
		Assessment	Inquiry	Essay Quiz		
		Welcome to the Lesson	Structured Overview	Interactive Animations		
		Awaken Prior Knowledge	Drilling Exercise	Video		
		Review Key Points	Inquiry	Gamification		
		Content	Discovery Learning	Infographics		
		Discussion	Lecture	PPT and Explanation		
		Review Key Points	Direct Instruction	Video		
		Assessment	Reflective Discussion	Interactive PDFs		
		Welcome to the Lesson	Question and Answer	Presentation		
Awaken Prior Knowledge	Inquiry	Video				
Review Key Points	Drilling Exercise	Infographics				
Content	Inquiry	Quiz				
Discussion	Structured Overview	Video				
Review Key Points	Discovery Learning	Interactive Animations				
Assessment	Drilling Exercise	iPDF				
Welcome to the Lesson	Lecture	Infographics				
Awaken Prior Knowledge	Drilling and Practice	Explanation Video				
Review Key Points	Reflective Discussion	Gamification				
Assessment	Inquiry	Presentation				
Welcome to the Lesson	Question and Answer	Infographic				
Awaken Prior Knowledge	Inquiry	Infographic				
Review Key Points	Question and Answer	Video				
Assessment	Inquiry	Essay Quiz				

Table 4. LO development KD 3.3. 4.3

Basic Competence	Topic and Context	Topic Identification	Material Maps	Learning Scenario		LOM
				Structural Element	Instructional Method	
<p>3.3. Membedakan fungsi sosial, struktur teks, dan unsur kebahasaan beberapa teks khusus dalam bentuk teks caption, dengan meminta informasi terkait gambar/foto/tabel/grafik/bagan, sesuai dengan konteks penggunaannya.</p> <p>4.3.1. Menangkap makna secara kontekstual terkait fungsi sosial, struktur teks, dan unsur kebahasaan teks khusus dalam bentuk caption terkait gambar/foto/tabel/grafik/bagan.</p> <p>4.3.2. Menyusun teks khusus dalam bentuk teks caption terkait gambar/foto/tabel/grafik/bagan, dengan memperhatikan fungsi sosial, struktur teks, dan unsur kebahasaan, secara benar dan sesuai konteks.</p>	Caption on Pictures/Images/ Graphics/Tables	Social Function of Caption on Pictures/Images/ Graphics/Tables	Recognizing Social Function of Pictures/ Images/ Graphics/ Tables	Welcome to the Lesson	Structured Overview	Video
				Awaken Prior Knowledge	Inquiry	Animation
				Review Key Points	Drilling Exercise	iPDF
				Content	Mental Image Modelling	Infographics
				Discussion	Lecture Practice	Explanation Video
				Review Key Points	Group Discussion	Interactive PDFs
		Assessment	Inquiry	Presentation		
		Review Key Points	Question and Answer	Infographic Gamification		
		Assessment	Inquiry	Simple Quiz		
		Welcome to the Lesson	Structured Overview	Video		
		Awaken Prior Knowledge	Inquiry	Animation		
		Review Key Points	Drilling Exercise	Gamification		
	Content	Discovery Learning	Infographics			
	Discussion	Lecture Practice	Explanation Video			
	Review Key Points	Group Discussion	Interactive PDFs			
	Assessment	Inquiry	Presentation			
	Review Key Points	Question and Answer	Infographics			
	Assessment	Inquiry	Animation			
	Welcome to the Lesson	Structured Overview	Video			
	Awaken Prior Knowledge	Inquiry	Animation			
	Review Key Points	Drilling Exercise	Mini Quiz			
	Content	Discovery Learning	Infographics			
	Discussion	Lecture Practice	Explanation Video			
	Review Key Points	Group Discussion	PPT			
Assessment	Inquiry	Gamification				
Review Key Points	Collaborative Review	Interactive PDFs				
Assessment	Inquiry	Essay Quiz				
Welcome to the Lesson	Structured Overview	Video				
Awaken Prior Knowledge	Inquiry	Interactive PDF				
Review Key Points	Drilling Exercise	Animation				
Content	Discovery Learning	Infographics				
Discussion	Lecture Practice	Explanation Video				
Review Key Points	Group Discussion	Presentation				
Assessment	Inquiry	Gamification				
Review Key Points	Question and Answer	Animation				
Assessment	Inquiry	Quiz				

Basic Competence	Topic and Context	Topic Identification	Material Maps	Learning Scenario		LOM
				Structural Element	Instructional Method	
<p>3.4. Membedakan fungsi sosial, struktur teks, dan unsur kebahasaan beberapa teks news item lisan dan tulis dengan memberi dan meminta informasi terkait berita sederhana dari Koran/radio/TV, sesuai dengan konteks penggunaannya.</p> <p>4.4. Menangkap makna secara kontekstual terkait fungsi sosial, struktur teks, dan unsur kebahasaan teks news item lisan dan tulis, dalam bentuk berita sederhana koran/radio/TV.</p>	News Item	Social Function of News Item	Recognizing Social Function of News Item	Welcome to the Lesson	General Overview	Animation
				Awaken Prior Knowledge	Inquiry	News Video
				Review Key Points	Simple Quiz	iPDF
				Content	Discovery Learning	Infographics
				Discussion	Lecture Drilling Practice	Explanation Video
				Review Key Points	Group Discussion	Mini Quiz
				Assessment	Inquiry	Presentation
				Review Key Points	Question and Answer	Interactive
				Assessment	Inquiry	Animation
				Welcome to the Lesson	General Overview	Quiz
				Awaken Prior Knowledge	Inquiry	Interactive PDFs
				Review Key Points	Drilling Exercise	Video
		Content	Mental Modelling	Text-Based Animation		
		Discussion	Lecture Drilling Practice	Structured Infographic		
		Review Key Points	Collaborative Discussion	Explanation Video		
		Assessment	Inquiry	Talking Animation		
		Review Key Points	Reflective Review	PPT		
		Assessment	Inquiry	Brief Video		
		Welcome to the Lesson	General Overview	Gamification		
		Awaken Prior Knowledge	Inquiry	Activity		
		Review Key Points	Drilling	Video		
		Content	Discovery Learning	Infographics		
		Discussion	Drilling Exercise	Animation		
		Review Key Points	Lecture Drilling Practice	Whiteboard Animation		
		Assessment	Inquiry	PPT		
		Review Key Points	Group Discussion	Presentation		
		Assessment	Inquiry	Gamification		
		Welcome to the Lesson	General Overview	Quiz		
		Awaken Prior Knowledge	Inquiry	Video		
		Review Key Points	Drilling Exercise	Animation		
		Content	Mental Modelling	iPDF		
		Discussion	Lecture Direct Instruction	Explanation Video		
		Review Key Points	Group Discussion	PPT		
		Assessment	Inquiry	Gamification		
		Review Key Points	Question and Answer	Brief Video		
		Assessment	Inquiry	Animation		
		Welcome to the Lesson	Structured Overview	Quiz		
		Awaken Prior Knowledge	Inquiry	Video		
		Review Key Points	Drilling Exercise	Text-Based Animations		
		Content	Discovery Learning	Animations		
		Discussion	Lecture Direct Instruction	Gamification		
		Review Key Points	Reflective Discussion	Activity		
		Assessment	Inquiry	Infographics		
		Review Key Points	Question and Answer	Interactive PDFs		
		Assessment	Inquiry	Video		
		Review Key Points	Question and Answer	Presentation		
		Assessment	Inquiry	Video		
		Review Key Points	Question and Answer	Interactive Animation		
Assessment	Inquiry	Quiz				

### 4.2. Discussion

There were seven stages on composing learning object materials of English for senior high school students in class XII. The first step was writing down the selected basic competences inserted in the curriculum. The basic competences selected were the basic

competences for twelfth graders of Senior High School. The researcher then determined the topic and the context from the basic competences. The topic and the context were developed based on the curriculum itself. Both the topic and the context will later determine the next phases in designing learning object materials.

In the next step, the researcher classified and focused the topic identification of each basic competence on social functions, text structures, and linguistic elements. Besides, it is stated that basic competence consists of three scopes, namely social function; text structure; and linguistic features. Next, the researcher composed the material maps from the identified topic. Through the composed material maps, the researcher continued to construct the structural elements of the lesson. The structural elements would be synthesized based on Allela [39] microlearning model. After that, the instructional method would be developed. It basically focused on student-centered learning. Move on to the next stage, the researcher proposed the learning object materials.

These learning object materials could be seen on the established tables above. It was noticeable from the tables that the researcher proposed several learning object materials, namely video; presentation; PDFs; animation; infographics; gamification; and quiz.

According to Allela [39], microlearning video is highly ideal as reference material. Video is also a quick tool to teach concept to the students. As a learning object material, video is also easy to produce. In terms of gaining knowledge, through video as a combination of visual sense with audio would definitely enhance students' attention in grasping the knowledge transfer. R. E. Mayer & Simms [56] stated that students will be much easier to recall and recognize information through presented idea in visual and verbal form. Therefore, videos must be topic-centered and concise, just like the characteristics of microlearning and LOM itself. It must address one narrow concept or one key task. By integrating video as a learning object material, students' motivation during the learning process will be stimulated [57]. Thus, the students can comprehend the lesson. It is believed that video enhances students' learning outcome [58].

Another adequate format of learning object material is presentation. A presentation, such as Microsoft PowerPoint; Prezi; and so forth could be integrated to make up interactive learning environment. As a learning object material, presentation is believed to be engaging; simple; and dynamic. In other respects, iPDF or interactive PDF is also an ideal and handy resource used as learning object material. It enables the learners to build an interaction with their educators. It presents learning contents in versatile ways. iPDFs are well-suited for teaching-learning process. The information of the learning contents could be well-organized through iPDFs [39].

Likewise, animation is applicable as learning object material. It combines description; explanation; and interaction. It is a medium which can boost learners' understanding, especially in concrete and abstract concepts. Animation is a powerful method to design engaging learning experiences for learners. Animation could bring learning content to life as it visually communicates learning ideas in an easy-to-comprehend way. It delivers complicated concepts into simple learning chunks in interesting manner [39], [59].

According to Allela [39], infographics are also seen as great learning object materials since infographics can simply complex learning contents which involve statistics, trends, and facts. Infographics provide general overview of learning topic. These infographics enable the learners to consume all the learning contents.

Move on to the next proposed learning object material, there will be gamification. It creates well-crafted fun learning and features. Thus, it could be bite-sized learning activity [39]. Moreover, Urh et al. (2015) expressed that gamification highlights displaying visible learning aims which have been divided into micro levels. In more details, gamification in microlearning also elevates students' ability in solving the learning problems [61]. It is supported by Glover [62] who concluded that gamification raises a guarantee in which learners will follow the whole teaching-learning process completely. Fredricks &



McColskey (2012) uttered that gamification stirs up learners to participate in learning environment. It also involves and constructs learners' cognitive understanding. Gamification is said to be goal-focused that can boost learners' skills and learners' conceptual knowledge [64].

On top of that, Wouters et al. (2011) revealed that gamification might lead students to gain higher learning outcomes; affective cognitive ability; and communicative learning skills. In more details, gamification in microlearning also provides immediate feedback. Learners could get direct report regarding their learning progress [60], [66]. Similar to this, gamification brings forth positive reinforcement; tiny step-by-step learning assignments; instant feedback; and progressive learning challenges [67], [68]. Well-designed gamification in microlearning offers continuing learning opportunities for learners to improve. Other than that, learners could also solve complex learning tasks individually and enhance their response to the learning process [69], [70]. In depth, gamification could give students full learning autonomy over their work. It assists students to continue learning despite the current learning drawbacks.

## 5. CONCLUSION

The results showed that there were seven steps of process to design learning object materials of English for twelfth graders of Senior High School. The first step in constructing learning object materials for twelfth graders of Senior High School was writing down the selected basic competences in the curriculum. After that, the researcher derived the basic competence into its context. The researcher then identified the topics and constructed the material maps of each topic. Finally, the researcher could propose the learning object materials. The proposed learning object materials were video; presentation; PDFs; animation; infographics; gamification; and quiz. The result also indicated that from four basic competences for twelfth graders of Senior High School in the first semester, there would be 18 material maps that have been depicted from the identified topics.

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## 7. REFERENCES

- [1] Kusnandar, "Pengembangan Bahan Belajar Digital Learning Object," *J. Teknodik*, pp. 583–595, 2014, doi: 10.32550/teknodik.v0i0.69.
- [2] R. Bušljeta, "Effective Use of Teaching and Learning Resources," *Czech-Polish Hist. Pedagog. J.*, pp. 54–70, 2013.
- [3] A. Kholik, "Authentic Materials Selection in Hospitality Program at State Vocational High School (SMKN) 1 Buduran Sidoarjo," *Jambi-English Lang. Teach. J.*, vol. 1, no. 2, pp. 78–89, 2016.
- [4] F. Oryema and E. O. Picho, "Instructional Resource Provision and Teacher Effectiveness in Universal Secondary Education in Uganda," *Glob. J. Commer. Manag. Perspect.*, vol. 4, no. 6, pp. 39–46, 2015.
- [5] R. Navarrete and S. Luján-Mora, "Accessibility Considerations in Learning Objects and Open Educational Resources," 2013.
- [6] S. C. Cazella, E. B. Reategui, and P. Behar, "Recommendation of Learning Objects Applying Collaborative Filtering and Competencies," 2014.
- [7] S. Mavers, "A Review of Learning Objects," 2020.
- [8] G. Ocak, H. Ozcalisan, and K. N., "The Student Attitudes in Terms of the Usage of English

- Activities and Materials and Their Contributions to English Learning Process,” *Procedia-Social Behav. Sci.*, 2010.
- [9] C. M. Reigeluth and L. M. Nelson, “A new paradigm of ISD?,” *Educ. Media Technol. Yearb.*, vol. 22, pp. 24–35, 1997.
- [10] O. J. Dahl and K. Nygaard, “Communications of the ACM,” *SIMULA - An Algol based Simul. Lang.*, vol. 9, no. 9, pp. 671–678, 1966.
- [11] S. Downes, “Designing Learning Objects,” 2003.
- [12] N. Friesen, “What are Educational Objects?,” vol. 9, no. 3, pp. 219–230, 2001.
- [13] D. A. Wiley, *The Instructional Use of Learning Objects*, First Edit. Bloomington, Indiana: Agency for Instructional Technology and Association for Educational Communications & Technology, 2002.
- [14] E. U. Artha, A. Widiyanto, and N. A. Prabowo, “The Readiness of Learning Object Materials During the COVID-19 Pandemic,” vol. 15, no. 1, pp. 25–30, 2021.
- [15] W. H. Hodgins, “The Future of Learning Objects,” 2000.
- [16] R. Õunapuu, “The Application of Learning Objects in an Estonian Basic School EFL Class: A Pilot Study,” 2018.
- [17] G. Falloon, A. Janson, and R. Janson, “Learning Objects and the Development of Students’ Key Competencies: A New Zealand School Experience,” *Australas. J. Educ. Technol.*, vol. 26, pp. 626–642, 2010.
- [18] P. A. Behar, K. K. A. da Silva, D. Schneider, S. C. Cazella, C. A. W. Torrezan, and E. Heis, “Development and System Assessment of Learning Object Recommendation based on Competency RecOAComp,” 2015.
- [19] H. Urrego and S. Cecilia, “A Virtual Learning Object (VLO) to Promote Reading Strategies in an English for Specific Purposes Environment,” vol. 26, no. 2, pp. 106–122, 2019.
- [20] M. F. Litzler, J. G. Laborda, and A. Halbach, “Creation and Use of a Learning Object Repository for EFL,” no. December, 2012, doi: 10.1016/j.sbspro.2012.08.002.
- [21] R. D. R. Castro and I. U. Gutiérrez, “The Relation between the Implementation of Learning Objects and Listening Skills,” *Av. en Educ. y Humanidades*, pp. 59–70, 2017.
- [22] I. Santosa, N. Lustyantje, and I. Iskandar, “Microlearning-based Learning Object Material of English Subject Class XII,” 2022.
- [23] OASIS, “Sharable Content Object Reference Model initiative (SCORM),” 2003.
- [24] D. Wiley, “The Post-LEGO Learning Object,” 1999.
- [25] M. D. Merrill, “Instructional Transaction Theory (ITT): Instructional Design Based on Knowledge Objects,” 1999.
- [26] D. Wiley, M. Barclay, D. Dawson, B. Lambert, and L. Nelson, “Overcoming the Limitations of Learning Objects,” 2004.
- [27] M. Sosteric and S. Hesemeier, “When is a Learning Object not an Object: A First Step towards a Theory of Learning Objects,” *Int. Rev. Res. Open Distance Learn.*, vol. 3, no. 2, 2002.
- [28] LOM, “LOM Working Draft,” vol. 4, no. 1, 2000.
- [29] C. Quinn and S. Hobbs, “Learning Objects and Instructional Components,” *Educ. Technol. Soc.*, vol. 3, no. 2, 2000.
- [30] D. Herin, “Learning Object Specification and Description of Pedagogical Resources in Respect to Material Structure and Content,” no. May, 2014.
- [31] R. Bustan and N. Fitria, *Proceedings-2nd-ICET-2016 (1)*, vol. 2, no. September, 2016.
- [32] R. McGreal, “Learning Objects: A Practical Definition,” *Int. J. Instr. Technol. Distance Learn. Website*, 2004.
- [33] S. Silander and P. Pitkänen, “Criteria for Pedagogical Reusability of Learning Objects Enabling Adaptation and Individualised Learning Processes,” *Proc. IEEE Int. Conf. Adv. Learn. Technol. (ICALT '04)*, pp. 246–250, 2004.
- [34] O. MacKenzie, E. L. Christensen, and P. H. Rigby, “Correspondence instruction in the United States: A study of what it is, how it functions, and what its potential may be,” 1968.

- [35] ALI, "Apple Learning Interchange," 2000.
- [36] A. Adams, J. Lubega, S. Walmsley, and S. Williams, "The Effectiveness of Assessment Learning Objects Produced using Pair Programming," *Electron. J. e-Learning*, vol. 2, no. 2, 2004.
- [37] C. Quinn, "Learning Objects and Instruction Components."
- [38] T. Kasenberg, "Microlearning: A Practitioners Guide," pp. 1–42, 2017.
- [39] Alella, *Introduction to Microlearning*. Burnaby, British Columbia: Commonwealth of Learning, 2021.
- [40] T. Hug, "Mobile Learning as 'Microlearning'," *Int. J. Mob. Blended Learn.*, vol. 2, no. 4, pp. 47–57, 2010.
- [41] T. Hug, "Microlearning: Emerging Concepts, Practices and Technologies; Proceedings of Microlearning 2005; Learning & Working in New Media Environments." IUP-Innsbruck University Press, 2006.
- [42] D. Ariantini, "Pengembangan Animasi Pembelajaran Berbasis Microlearning pada Kelas III Sekolah Dasar Mutiara Singaraja Tahun Pelajaran 2018/2019," *J. EDUTECH Undiksha*, vol. 7, no. 1, pp. 23–32, 2019.
- [43] E. Surahman *et al.*, "Pelatihan Microlearning Object Berbasis Tpack Bagi Guru-guru SMA di Garut," *J. Ilm. Pengabd. Kpd. Masy.*, vol. 3, no. 2, pp. 1–14, 2020.
- [44] L. Giurgiu, "Microlearning an Evolving Elearning Trend," *Sci. Bull.*, vol. 22, no. 1, pp. 18–23, 2017.
- [45] B. Gross *et al.*, "Microlearning for Patient Safety: Crew Resource Management Training in 15- Minutes," *PLoS One*, vol. 14, no. 3, 2019.
- [46] A. Winger, "Supersized Tips for Implementing Microlearning in Macro Ways," *Distance Learn.*, vol. 15, no. 4, pp. 51–56, 2018.
- [47] A. Buhu and L. Buhu, "The Applications of Microlearning in Higher Education in Textiles," *ELearning Softw. Educ.*, vol. 3, pp. 373–376, 2020.
- [48] A. Hesse, P. Ospina, M. Wieland, F. A. L. Yepes, B. Nguyen, and W. Heuwieser, "Short Communication: Microlearning Courses are Effective at Increasing the Feelings of Confidence and Accuracy in the Work of Dairy Personnel," *J. Dairy Sci.*, vol. 102, no. 10, pp. 9505–9511, 2019.
- [49] M. Bradley, "Microlearning Meaning," 2016.
- [50] T. Hug and N. Friesen, "Outline of a Microlearning Agenda. eLearning Papers. No 16. September 2009. ISSN 1887-1542." 2009.
- [51] S. Cavanagh, "Content Analysis: Concepts, Methods, and Applications.," *Nurse Res.*, vol. 4, no. 3, pp. 4–16, 1997.
- [52] R. P. Weber, *Basic Content Analysis*. Beverly Hills: Sage Publication ltd., 1990.
- [53] B. Downe-Wamboldt, "Content Analysis: Method, Applications, and Issues," *Health Care Women Int.*, vol. 13, pp. 313–321, 1992.
- [54] M. D. Ghony and F. Almanshur, *Metodologi Penelitian Kualitatif*. Yogyakarta: Ar-ruzz Media, 2012.
- [55] R. Bogdan and S. K. Biklen, *Qualitative Research for Education: An Introduction to Theories and Methods*. Boston: Allyn and Bacon, Inc, 1998.
- [56] R. E. Mayer and V. K. Simms, "For Whom Is a Picture Worth a Thousand Words? Extensions of a Dual Coding Theory of Multimedia Learning," *J. Educ. Psychol.*, vol. 86, pp. 389–401, 1994.
- [57] H. S. Purbayanti, P. Ponoharjo, and D. N. Oktaviani, "Analisis Kebutuhan Video Pembelajaran Matematika Pada Pandemi Covid-19," *J. Ilm. Pendidik. Mat.*, vol. 5, no. 2, pp. 165–172, 2020.
- [58] M. C. Adhipertama, I. N. Jampel, and I. G. W. Sudatha, "The Development of Learning Video Based on Micro-Learning Principle Towards Science Subject in Junior High School," *Indones. J. Educ. Res. Rev.*, vol. 3, no. 3, pp. 132–143, 2020.
- [59] M. Betrancourt and A. Chassot, "Making Sense of Animation: How do Children Explore

- Multimedia Instruction?,” in *Learning with Animation: Research Implications for Design*, R. Lowe and W. Schnotz, Eds. Cambridge University Press, 2008, pp. 141–164.
- [60] M. Urh, G. Vukovic, E. Jereb, and R. Pintar, “The Model for Introduction of Gamification into E-learning in Higher Education,” *Procedia - Soc. Behav. Sci.*, vol. 197, no. February, pp. 388–397, 2015, doi: 10.1016/j.sbspro.2015.07.154.
- [61] K. M. Kapp and J. Coné, “What Every Chief Learning Officer Needs to Know about Games and Gamification for Learning,” 2012.
- [62] I. Glover, “Play as You Learn : Gamification as a Technique for Motivating Learners,” 2013.
- [63] J. A. Fredricks and W. McColskey, “The Measurement of Student Engagement: A Comparative Analysis of Various Methods and Student Self-Report Instruments,” in *Handbook of Research on Student Engagement*, 2012, pp. 763–782.
- [64] L. De Marcos, E. García-López, and A. García-Cabot, “Dataset on the Learning Performance of ECDL Digital Skills of Undergraduate Students for Comparing Educational Gaming, Gamification, and Social Networking,” *Comput. Educ.*, vol. 95, pp. 99–113, 2017, doi: 10.1016/j.dib.2017.01.017.
- [65] P. Wouters, E. D. van der Spek, and H. van Oostendorp, “Measuring Learning in Serious Games: A Case Study with Structural Assessment,” *Educ. Technol. Res. Dev.*, vol. 59, no. 6, pp. 741–763, 2011.
- [66] H. Jusuf, “Penggunaan Gamifikasi dalam Proses Pembelajaran,” *J. TICOM*, no. 1, pp. 1–7, 2016.
- [67] G. I. Biro, “Ready, Study, Share: An Inquiry Into the Didactic Approach of Gamification With a Special View to the Possible Application in Higher Education,” in *1st Annual International Interdisciplinary Conference*, 2013, no. April, pp. 22–27.
- [68] G. I. Biro, “Didactics 2.0: A Pedagogical Analysis of Gamification Theory from a Comparative Perspective With a Special View to the Components Of Learning,” 2014.
- [69] R. Garris, R. Ahlers, and J. E. Driskell, “Games, Motivation, and Learning: A Research and Practice Model,” *Simul. Gaming*, vol. 33, no. 4, pp. 441–467, 2002.
- [70] S. A. Barab, M. Gresalfi, and A. Ingram-Goble, “Transformational Play using Games to Position Person, Content, and Context,” *Educ. Res.*, vol. 39, no. 7, pp. 525–536, 2010.