CHAPTER II: LITERATURE REVIEW

This chapter presents several theories underlying this study. The theories are expected to serve important background information to support the study and discuss the findings. Those are literature review of project based learning in Merdeka Curriculum, teachers' effort and students' engagement and the previous studies.

A. Literature Review

1. Project Based Learning in Merdeka Curriculum

a. Definition

The issue of The Kemendikbudristek BSKAP that declares no.044/H/KR/2022 about the list of schools or units Implementing Kurikulum Merdeka (afterward called PSP schools), the Education and Culture Ministry as the Indonesian government has launched a new policy that allows schools that are ready to implement "Merdeka Curriculum" with two categories: Program Sekolah Penggerak (afterward called PSP schools), and schools that are independently volunteering to implement as an alternative way to recover the learning activity after the exceptional condition caused by COVID-19.

Regulatory Support Implementation of Merdeka Curriculum for learning recovery is carried out based on the policy of:

i. Permendikbudristek No. 5 of 2022 (Graduate Competency Standards in Early Childhood Education, Primary Education, and Secondary Education),

ii. Permendikbudristek No. 7 of 2022 (Content Standards at Early Childhood Education, Primary Education and Secondary Education).

iii. Permendikbudristek No. 16 of 2022 (Process standards for early childhood education, primary education and secondary education),

iv. Permendikbudristek No. 21 of 2022 (Assessment Standards in Early Childhood Education, Primary Education and Secondary Education),

v. Kepmendikbudristek No. 56 of 2022 (Guidelines for Curriculum Implementation in the Context of Learning Recovery).

The Merdeka Curriculum is implemented according to schedule under the direction of Kemendikbudristek, the Ministry of Education, Culture, Research, and Technology. Education units will have the option to select the Merdeka Curriculum selectively at the beginning of the 2022–2023 school year.

In order to implement the Merdeka Curriculum in the academic year 2022–2023, the Head of the Education Standards, Curriculum and Assessment Agency (BSKAP) signed Decree (SK) Number 044/H/KR/2022 on July 12, 2022, which establishes over 140,000 educational units. The changes in various education units, such as moving from the level of independent learning to independent change or vice versa, reflect and alter the degree of implementation, so the decree automatically replaces the earlier decree[1].

Project-Based Learning is a learning model that places projects and activities at the center of learning and can be utilized to implement the merdeka curriculum. Learners engage in exploration, assessment, interpretation, synthesis, and information gathering to produce various learning outcomes. Project-based learning is an approach in education where students gather and integrate new knowledge through problems based on real-world experiences. PjBL is a comprehensive study of a practical issue. The steps involved in project-based learning include formulating the main issue, creating a project plan, setting up a timeline, monitoring, testing the result, creating a project plan and evaluating the experience[2].

b. **PjBL Characterictics**

There are some standard features across all implementations, even though each project-based learning model has unique characteristics. Based on Grant (2002), those include:

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[1] (https://ditpsd.kemdikbud.go.id)
[2] (Permendikbud, 2014: 975-976)

1. Introduction.

An introduction is often used to establish and anchor the project's purpose. This part helps to motivate learners. Job-related skills, such as graphic arts or web page design, often use the domain as an anchor because they are relevant to the profession.

2. Task

The goals and contents of the study are defined in the task, guiding question, or driving question. The tasks should be engaging, doable and challenging.

3. Resources

Helpful information is available from various devices and tools, such as hypertext links, computers, scientific probes, compasses, CD-ROMs, and eyewitnesses.

4. Process

Processes and investigations describe the steps necessary to complete a task or answer a driving question. Analyzing, synthesizing, and evaluating information are indications of activities that require critical thinking skills.

5. Guidance and Scaffolding

As learners need assistance, guidance, and scaffolding will be required. Examples include student-teacher interactions, practice worksheets, peer counseling, guiding questions, job instruments and project templates.

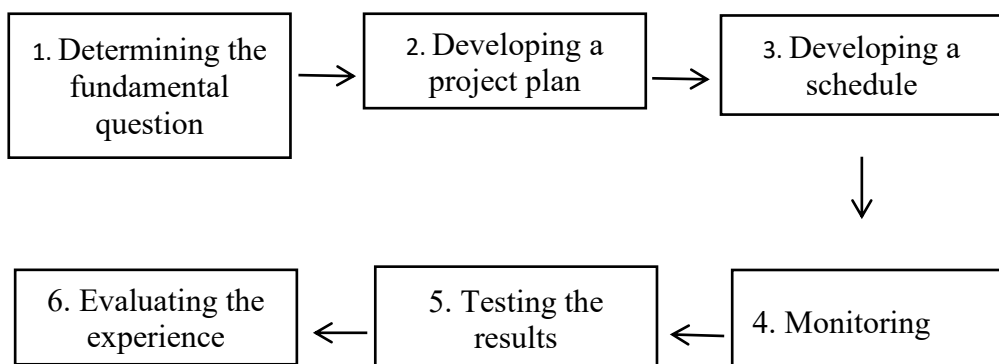6. Cooperative or collaborative learning

Projects tend to involve groups or teams, especially those with limited resources. Peer reviews and group brainstorming sessions are examples of cooperative learning activities.

7. Reflection

Outstanding examples of project-based learning allow for closure, discussion, and reflection. Examples include: in-class discussions, journal entries, and follow-up questions about student learning[3].

On the other hand, Permendikbud (2014) stated that implementing project-based learning involves determining the fundamental question, developing a project plan, developing a schedule, monitoring, testing the results, and evaluating the experience. The steps of implementing learning with applying the PjBL model is visualised in the picture below.

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[3] Grant, M. M. (2002). *Getting a grip on project-based learning: Theory, cases and recommendations*. https://www.researchgate.net/publication/228908690

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┌─────────────────────┐      ┌─────────────────────┐      ┌─────────────────────┐
│ 1. Determining the  │ ───► │ 2. Developing a     │ ───► │ 3. Developing a     │
│    fundamental      │      │    project plan     │      │    schedule         │
│    question         │      │                     │      │                     │
└─────────────────────┘      └─────────────────────┘      └─────────────────────┘
                                                                     │
                                                                     ▼
┌─────────────────────┐      ┌─────────────────────┐      ┌─────────────────────┐
│ 6. Evaluating the   │ ◄─── │ 5. Testing the      │ ◄─── │ 4. Monitoring       │
│    experience       │      │    results          │      │                     │
└─────────────────────┘      └─────────────────────┘      └─────────────────────┘
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The following table describes teacher and learner activities in implementing PjBL.

Table 1.

Work Steps	Teacher Activity	Learner Activity
Fundamental Questions	Teachers deliver the topic and develop the questions on how to solve the issue	Questioning the necessary activity that students can do to bring the solution
Designing Planning Product	Teachers make sure that every learner decides and understands the procedure in producing the project or product	Students discuss and work together on planning the project, including the division of tasks, tool preparation, materials, media, and resources needed.
Developing a Schedule	The teachers and students agree on the project schedule, including the stages and collection.	Students set a deadline to finish the project
Monitoring the Activeness and	Teachers track the students' activity during the	Students do the project, take notes on every stage,

Progress of the Project	implementation of the project	discuss the obstacles of the project with the teacher
Testing Project Results	Teachers discuss the project prototype, observe the students' engagement and measure the achievement's standard	Students discuss the feasibility of the project they have made and write a product/work report to be presented to others.
Evaluation of Learning Experience	Teachers guide the project presentation process, draw the results, and then conclude and evaluate with the students.	Every student shares the report while the others give feedback then conclude the project results.

2. Teachers' effort in implementing PjBL and Students' engagement

a. Teachers' Effort

According to Robertson RJ and Noble BJ (1997), it is generally recognized that the neural processing of sensory signals results in the perception of effort, and that this neural process is influenced by a variety of psychological and sociological factors[4]. People are able to distinguish between effort and other emotions associated with the teaching-learning process. The term perception of effort refers to a cognitive sense of work associated with voluntary actions. It is also used to describe perceived exertion or a sense of effort. Weiner (1974) states that both determine achievement behavior: 'can' or ability and 'try' or effort.

Gerler (1984) assumes that more efforts should be made to encourage students to create visual illustrations through internal imaging. Regarding society's imagination and needs, students respond to parental or societal pressure and boredom. A student's self-image influences their

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[4] Robertson RJ, Noble BJ. (1997). Perception of physical exertion: methods, mediators, and applications. Exerc Sport Sci Rev. PMID: 9213100.

behavior[5]. Students who consider themselves disabled will perform well. Whether students are bored or have low self-esteem, the allocation and sense of control theories can help them improve their comprehension skills. In control work, some instructors try to persuade the student that the child's success or failure results from ability and effort (success) or a lack of effort. Using essential concept learning and imaging, mental visualization should increase an excellent way to encourage self-confidence by creating a challenge for the student with a high chance of success[6].

b. Teachers' Effort in Implementing PjBL

Numerous studies and theoretical frameworks demonstrate the beneficial connection between student motivation and cognitive engagement[7].Teachers must figure out how to inspire students in classrooms that are becoming more diverse. The one-size-fits-all strategy must adapt to the various motivators that each of their students has. A student-centered approach is made possible by PjBL, which enables students to self-differentiate in order to boost motivation. Students are now free to choose their interests and use the options that best suit them. Students are intrinsically motivated to pursue deeper learning at their levels by this differentiation[8].

Students being immersed in real-world scenarios and problems is one aspect of PBL that raises motivation. Unlike traditional instruction, PjBL promotes flexible thinking and problem-solving, which often sets up problems to be solved singly. Compared to other narrative formats, it involves students in a more memorable story, especially for easily distracted students. Students can use stories to develop higher-order, creative thinking

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[5] Rude, R.T. and Oehlkers, W.J. (1984) *Helping Students with Reading Problems*. Englewood Cliffs, NJ: Prentice-Hall

[6] Purkey, W. W. (1970). *Self concept and school achievement.* Prentice-Hall.

[7] Blumenfeld, P., Soloway, E., Marx, R., Krajcik, J., Guzdial, M., & Palincsar, A. (1991). Motivating Project-Based Learning: Sustaining The Doing, Supporting The Learning. Educational Psychologist, 26(3), 369-398. doi:10.1207/s15326985ep2603&4_8

[8] Bell, S. (2010). Project-Based learning for the 21st century: Skills for the future. The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 83(2), 39-43. doi:10.1080/00098650903505415

skills and to draw conclusions[9]. Placing learning in these meaningful contexts makes learning more engaging for students[10]. The projects' organizational frameworks must also encourage investigation using a central inquiries. Engaging in inquiry-based learning makes students' projects more meaningful[11]. Inquiry stimulates students' imaginations and interests. Students begin with their question, which leads them to multiple sources to piece together their findings, often leading to additional questions. Students begin to realize that their problem and the world are complex, and in order to begin to solve these questions, students must collaborate and use the collective energy, experiences, and creativity of the group[12].

As a result, teachers who implement PjBL must be prepared to solve a wide range of problems for each student and group. In PjBL, students choose their solutions and routes, so the teacher must be prepared for problems unique to each student and group. Although all teachers must be prepared to deal with the variety of problems that individual students may present, Mergendoller's study found that PBL teachers used more planning, monitoring, scaffolding, adjusting, and troubleshooting strategies. Strategies for coaching and facilitating students' ability to self-manage their learning include making students aware of their responsibilities for doing and producing, establishing professional standards, providing examples of high-quality work, and introducing external resources. It is also necessary to establish clear consequences for failure and non-participation.

A teacher implementing PBL requires frequent conferences with students and groups, direct peer reviews, and an understanding of the project and rubric's expectations. Along with the guiding questions and rubrics to

[9] Graesser, A.C., Green, M.C., Strange, J.J.,Brock, T.C., (2002). Narrative Impact: Social and Cognitive Foundations. New York: Psychology Press.
[10] Gallagher, S. A. (2009). What Do You Need To Know? Becoming An Effective PBL Teacher. In B. MacFarlane & T. Stambaugh (Eds.), Leading change in gifted education: The festschrift of Dr. Joyce VanTassel-Baska (pp. 337–350). Waco, TX: Prufrock Press.
[11] Larmer, J., & Mergendoller, J.R. (2010). Seven Essentials For Project-Based Learning. Educational leadership, 68(1), 34-37
[12] Bell, S. (2010). Project-Based learning for the 21st century: Skills for the future. The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 83(2), 39-43. doi:10.1080/00098650903505415

set up student exploration, teachers need to guide their students forward[13]. Instead of being an instructor, the teacher becomes more of a facilitator. The teacher is actively involved, encouraging students to recognize their problem's complexities and assisting them in digging deeper into their inquiry. Teachers can also arrange for experts or adult mentors to provide feedback, which is particularly meaningful to students because of the source[14]. This also can help students build connections outside of school and build positive adult relationships.

Since coaching is an essential component of PBL, classroom management differs. Traditional instruction focuses on student discipline and pacing, keeping students in order to complete the lesson in an orderly manner[15]. This portrays the industrial model, which requires everyone to move at the same pace to maintain efficiency. Teachers set routines that cope with all students and keep them moving forward in the lesson. The goal of classroom management is to minimize behavioral issues and disturbances. A PjBL teacher's classroom management is learner-centered, with students managing their tasks, time, resources, group work, learning, and assessment[16]. As a result, teachers implementing PBL have a broader set of management responsibilities than in a traditional setting[17]. Teachers who use PBL additionally have to be prepared to offer their students a wider range of resources. The PBL classroom must be prepared to offer a wide range of resources, whereas the traditional classroom may only be focused on a few.[18]. With today's ever-changing technology, there is also a variety of ways to access information.

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[13] Mergendoller, J. R., & Thomas, J. W. (2001). Managing Project Based Learning: Principles from the Field. doi:10.1.1532.3730
[14] Larmer, J., & Mergendoller, J.R. (2010). Seven Essentials For Project-Based Learning. Educational leadership, 68(1), 34-3
[15] Kounin,JS. (1970). Discipline And Group Management In Classrooms. New York: Holt, Rinehart and Winston.
[16] Mergendoller, J. R., & Thomas, J. W. (2001). Managing Project Based Learning: Principles from the Field. doi:10.1.1532.3730
[17] Evertson, C. M., Neal, K. W., & Randolph, C. H. (2019). Creating Learning Centered Classrooms: Implications For Classroom Management. In E. Demarest (Ed.), Benchmarks For Excellence: Learning-Centered Classrooms and Schools. New York: Teachers College Press
[18] Mergendoller, J. R., & Thomas, J. W. (2001). Managing Project Based Learning: Principles from the Field. doi:10.1.1532.373

c. English Language Skill

The concept of language skills being divided into four categories, known as the "four skills" of listening, speaking, reading, and writing, is a widely accepted and commonly used framework in language teaching and learning. While it is not clear who was the first person to classify language skills in this way, the four skills approach has been a longstanding and influential approach in language education.

The four skills approach has its roots in the traditional methods of language teaching, which emphasized the importance of developing all four skills in order to become proficient in a language. This approach has been further developed and refined over time, and it is now widely used in language education as a way to structure and organize language learning and teaching activities. The four skills approach is based on the idea that effective language use involves the ability to listen and understand spoken language, to speak and communicate effectively, to read and understand written language, and to write clearly and accurately. By focusing on all four skills, learners can develop a well-rounded and comprehensive understanding of a language, and be able to use it effectively in a variety of contexts

3. Students' Engagement in Running the PjBL Task

Students' ability to self-differentiate when using technology in PjBL can also rise motivation. In addition, students can produce original representations of the material across various media. This gives students greater autonomy and allows them to experiment with various forms of technology, which is expected to enhance their motivation[19]. The students' access to diverse new technology is constantly growing, as are their preferences for which technology to use. This enables students to differentiate how they obtain information and how they present it. While educators may struggle to keep up with generational shifts in student

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[19] Blumenfeld, P., Soloway, E., Marx, R., Krajcik, J., Guzdial, M., & Palincsar, A. (1991). Motivating Project-Based Learning: Sustaining The Doing, Supporting The Learning. Educational Psychologist, 26(3), 369-398. doi:10.1207/s15326985ep2603&4_8

preferences, this differentiation allows students to use the media that they prefer. PjBL coaching and structure teach students how to use technology appropriately. When students share their work with their classmates, it can spark ideas for using technology, allowing students to brainstorm and build on each other's knowledge. This allows for thinking outside the box[20].

Every stage of the process must be valuable for PjBL to have an effect, including the final product. The final product does not have to be a paper; it can be adjusted to the student's skill level. Students who present an artwork, music video, video production, etc. will enjoy showing off their skills and receiving encouragement to create their best work. Students must present their work because it will have greater meaning when they present it to an authentic audience rather than just the teacher. Students will be more concerned with the quality of their work when they present it in front of an actual audience[21].

Effective PjBL implementation in education remains challenging, despite numerous reviews of positive studies on its advantages[22]. Project-based learning (PBL) has been a part of education for more than a century, but in order to see the advantages it provides and gets our students ready for the twenty-first century, there are a lot of obstacles and mindsets that must be overcome. Educational leaders must receive professional development to help them meet the particular requirements of individual teachers. Teachers need to understand that the purpose of PBL is to help students develop the skills required to solve problems in the real world by acting as a coach and facilitator[23]The process must include flexibility, ongoing training, and continuous feedback. Teachers can control the process and continuously

[20] Bell, S. (2010). Project-Based learning for the 21st century: Skills for the future. The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 83(2), 39-43. doi:10.1080/00098650903505415

[21] Larmer, J., & Mergendoller, J.R. (2010). Seven Essentials For Project-Based Learning. Educational leadership, 68(1), 34-37

[22] Blumenfeld, P., Soloway, E., Marx, R., Krajcik, J., Guzdial, M., & Palincsar, A. (1991). Motivating Project-Based Learning: Sustaining The Doing, Supporting The Learning. Educational Psychologist, 26(3), 369-398. doi:10.1207/s15326985ep2603&4_8

[23] MaKinster, J. G., Barab, S. A., & Keating, T. M. (2001). Design And Implementation Of An On-line Professional Development Community: A Project-Based Learning Approach In A Graduate Seminar. Electronic Journal of Science Education, 5(3), 1-8.

enhance their methods by creating routines and an organic system for honest feedback.

Because PBL is learner-centered, it is necessary to reevaluate the students' points of view regularly. PBL issues frequently develop from a failure to adequately consider the students' perspectives. If students are to be the center of PBL, then the intricate nature of their motivation, knowledge, and skills must be considered. Instead of asking questions from an adult perspective, ask questions from the students' perspective. The growth of new educational technology that can assist teachers and learners is one crucial issue that needs to be addressed. Maintaining student motivation requires teachers to stay up to date with the rapidly shifting field of technology.[24].

In the process of building and increasing the engagement in the classroom, besides understanding the concept of engagement, the teachers also need to pay attention to the forms of engagement that the students have. Bedell (2014) says that "engagement is more than just listening, behaving and being 'on task, but it is about what the students do, what they think and also how they feel". Based on this definition, engagement can be divided into three dimensions 1)behavioral engagement; 2) cognitive engagement; 3) emotional engagement (Bedell: 2014).

According to Gibbs and Poskitt (2010.) behavioral engagement refers to some behaviors in the classroom such as: participation; presence; on task;behavior; compliance with rules; and also effort, persistence, concentration, attention, rates of/quality of contribution. While, emotional engagement includes some points: positive and negative reactions to teachers, classmates, academic activity and school; student attitude (thoughts, feelings, and outlook); perception of the value of learning; interest and enjoyment; and happiness. Both, behavioral and emotional engagements are the foundation that constructs the cognitive engagement.

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[24] Blumenfeld, P., Soloway, E., Marx, R., Krajcik, J., Guzdial, M., & Palincsar, A. (1991). Motivating Project-Based Learning: Sustaining The Doing, Supporting The Learning. Educational Psychologist, 26(3), 369-398. doi:10.1207/s15326985ep2603&4_8

Cognitive engagement encompasses self-regulation, meta-cognitive activity, strategic action and investment in volitional learning and mastery. The process of engagement improvement is started from the behavioral engagement continue to the emotional engagement, and really improved in cognitive engagement. Teachers need to understand characteristics of each engagement's forms so that they can decide the correct method that will be used to increase the engagement.

B. Previous Studies

Ariyana et al. (2019) describe project-based learning as a method in which students actively participate in problem-solving. They can work in groups or individually, and the outcomes are then shared with others.[25]. This aligns with the views of Widhiastuti et al. (2023), who believe that project-based learning provides students with hands-on experience, allowing them to be more creative in their tasks. This approach encourages group projects through subjects, allows students to explore information that is important to them, and promotes teamwork in experiments.[26]. According to Alifiah (2019), project-based learning provides benefits such as improved skills, real-world experience, increased discipline, improved student-teacher relationships, and a positive learning environment.[27].

The "Wake Up Their Mind and Body" in P5 activities in Putri et al. (2023) have effectively promoted students' affective, cognitive, emotional, and psycho-motor aspects. The planning stage involved mature teachers preparing modules and activities, while the implementation stage involved projects like creating piggy banks, critical reasoning practice, and marching. These activities fostered unity and cooperation among students, ultimately

[25] Ariyana, Y., Pudjiastuti, A., Bestary, R., & Zamroni, D. (2019). Pembelajaran Berorientasi pada Keterampilan Berpikir Tingkat Tinggi. Direktorat Jenderal Guru Dan Tenaga Kependidikan, 1–23.
[26] Widhiastuti, K., Permatasari, A. P., Khoiroh, M., Aini, M. N., & Kusumaningrum, S. R. (2023). Project-Based Learning Role Analysis to improve student's writing skills in elementary school. JIIP (Jurnal Ilmiah Ilmu Pendidikan), 6(1), 94–98. https://doi.org/10.54371/jiip.v6i1.1382
[27] Afifah, A. N., Ilmiyati, N., & Toto, T. (2019). Model project-based learning (PjBL) berbasis stem untuk meningkatkan penguasaan konsep dan keterampilan berpikir kritis siswa. Quagga: Jurnal Pendidikan Dan Biologi, 11(2), 73. https://doi.org/10.25134/quagga.v11i2.1910

improving their academic performance[28]. A study conducted by Widarini et al (2023) revealed that students were satisfied with differentiated learning, the Pancasila student profile project, and the school environment, as it allowed for flexible and engaging learning. Additionally, students can explore their interests and talents through project activities. Students are enthusiastic about project-based learning as they are given games related to their projects at school.[29]

On the other hand, according to Sultan et al. (2023), student engagement varies. Some students may need more engagement in PBL due to various factors. They may exhibit passivity in group activities, rather than actively participating. A lack of initiative can hinder the collaborative spirit needed for PBL success. Active participation from all students benefits the group's learning. The overall challenge is maintaining and boosting students' motivation during learning. While some find creative writing liberating, it can also be intimidating for others. Finding a spark of interest in writing is crucial for students who do not naturally enjoy it. Teachers must find innovative ways to inspire and motivate students, ensuring a balance of challenge and support.[30]

[28] Dewi Suwarno Putri, Y., Khaerunisah, A., Astuti, D., Alfiani, T., Fakhiroh, Z., & Ayunda Febrianti, A. (2023). Implementation of the Pancasila Student Profile Strengthening Project (P5) in Elementary School. *Journal of Education and Teacher Training Innovation*, *1*, 11–23. https://doi.org/10.61227

[29] Wayan Wini Widarini, N., Ketut Suterji, N., Negeri, S., & Tinggi Agama Hindu Bhatara Guru Kendari Sulawesi Tenggara, S. (2023). Implementation of The Profile Strengthening of Pancasila Student Profile (P5) in Building Student Character in First Middle School. *International Journal of Multidisciplinary Sciences*, *1*(2). https://jayapanguspress.penerbit.org/index.php/IJMS

[30] Sultan, M. R., Qalbi, N., & Nappu, S. (2023). Project-Based Learning in Creative Writing: Teachers' Strategies and Encountered Obstacles. *VELES (Voices of English Language Education Society)*, *7*(2), 374–384. https://doi.org/10.29408/veles.v7i2.21419