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RHIZOMATIC APPROACH TO THE 21ST CENTURY EFL LEARNING: A LITERATURE REVIEW

Nizar Ibnus*

[a] English Language Teacher Education, Faculty of Education and Teacher Training, IAIN Syekh Nurjati Cirebon, Indonesia

*nizaribnusnizaribnus@gmail.com

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abstract

21st-century education is focused on preparing students with certain learning and life skills. Rhizomatic learning is among learning approaches subject to 21st-century challenges. This study is aimed at exploring what rhizomatic learning has to offer and what the underpinning theories are. The study employed a literature review procedure including writing, summarizing, integrating, analyzing, and criticizing. Rhizomatic learning is identified with a more modifiable instructional design central to students' needs. By principle, rhizomatic learning corroborates with peer scaffolding to promote collaboration and is feasible to be carried out through flipped classrooms by incorporating higher-order thinking activities. To avoid being lost in the information search process as well as to make students focused on constructing new knowledge, a teacher's intervention is required through guided inquiry.

INTRODUCTION

Teaching and learning have been evolving throughout time to meet the challenges of the era. In the 21st century, language teachers are expected to equip students with certain learning and innovation skills, and career and life skills by maximizing the use of information and communication technology (ICT) (American Association of School Librarians, 2007; Partnership for 21st-century skills, 2011; and Bolstad, Gilbert, McDowall, Bull, Boyd, and Hipkins, 2012). Their focus is not merely on how to teach linguistic knowledge and skills, but rather they need to explore teaching methodologies capable of preparing students to live and have careers in this era.

Technology in language learning has been practiced and a long discussion for decades. In the Indonesian context, distance learning has been regulated by the Ministry of National Education and Culture through the decree number 107/U/2001. However, the implementation always encounters seemingly endless challenges. The impact is more powerfully realized in the pandemic Covid-19 era in which online learning is no longer just a choice but the only solution to take.

Ministry of Education and Culture (2021) indicates that during pandemic Covid-19, there was a significant learning loss in the aspect of literacy and numeracy. Maximum effort is required to recover from this situation. One alternative is to explore another approach to learning. Rhizomatic learning is among relatively new approach which is worth the attention.

Rhizomatic learning is another constructivist learning that emphasizes flexible instructional design and personalized learning. The term is derived from botanical terminology *rhizome* or a kind of plant stem capable to grow roots on its own (Cormier,

2008). Using this metaphor, rhizomatic learning lets students grow by themselves following their needs and aspirations. Students, therefore, have bigger authority to modify learning by themselves (Lian and Pineda 2014).

In this respect, the question that may arise is whether the approach is feasible in the Indonesian context. If not, to what extent does it needs to adjust. This study is, therefore, attempted to gain a deeper understanding of what this approach has to offer and what the theoretical foundation underlies this theory.

METHOD

This study is categorized as a literature review. A literature review plays a significant role in research as it demonstrates the researcher's in-depth understanding of the field knowledge (Shah, Ahmed, and Khan, 2018). The procedure employed in this literature review is writing, summarizing, integrating, analyzing, and criticizing (Thody, 2006: 93). Relevant literature was collected and summarized to identify important points. Integration or synthesis was carried out to categorize points based on the defined themes. The analysis takes place to investigate the relation among the literature. Finally, the theories and frameworks were assessed by considering the context and how they can support rhizomatic learning theory.

FINDINGS AND DISCUSSION

The study will be given shape by the theory of rhizomatic learning by Cormier (2008) and Lian and Pineda (2014). This approach is closely tied with other theories and frameworks, firstly with the 21st-century learning framework, as suggested among others by the American Association of School Librarians (2007); Partnership for 21st-century skills (2011); Bolstad, Gilbert, McDowall, Bull, Boyd, and Hipkins (2012); and Kuhlthau (2010). Computer-assisted language learning frameworks play another supporting role, as suggested by Thomas, Reinders, and Warschauer (2012); and Levy, and Stockwell (2013). Higher-order thinking, as discussed by Alsowat (2016), is also in support of the theory. Another underpinning theory is peer scaffolding, as discussed by Lai and Law (2006); and Nguyen (2013). The last supporting theory is guided inquiry learning as suggested by Kuhlthau (2010).

Table 1. Review of relevant theoretical literature

Theoretical Framework	Relevant Literature	Review
Rhizomatic learning	Cormier (2008), Lian and Pineda (2014)	The practical aspects are needed as guidance for implementation.
The 21st Century Learning	American Association of School Librarians (2007); Partnership for 21st-century skills (2011); and Bolstad, Gilbert, McDowall, Bull, Boyd, and Hipkins (2012)	Rhizomatic learning, proposed to answer the 21st-century challenges, seems to be difficult to implement Indonesian context because traditional instructional practices have long been rooted in many schools.
Computer-assisted Language Learning	Thomas, Reinders, and Warschauer (2012) and Levy and Stockwell (2013)	Students need guidance about what to do and not to do in the process of discovery through ICT.
Higher-order thinking in the flipped classroom model	Alsowat (2016) and Wang and Wang (2014)	Students explore what they want and what they need to know at home and exercise their knowledge in the classroom through HOTS-based activities.
Peer scaffolding	Lai and Law (2006) and Nguyen (2013)	Peer scaffolding plays a significant role in the process of knowledge negotiation in the form of collaboration.
Guided inquiry	Kuhlthau (2010)	Teachers' guidance help students to

learning	concentrate on building new knowledge and strategy to search for information.

Rhizomatic Learning Theory

Rhizomatic learning is derived from botanical terminology *rhizome.* Deleuze and Guattari in *A Thousand Plateaus* coined the term *rhizome* to identify a plant stem that can grow roots on its own through several nodes (Cormier, 2008). This allows plants to reproduce asexually, which is a lot more practical than growing sexually. Plants with rhizomes have no center and boundary, the only limit is their habitat. Ginger, bamboo, and turmeric are among the plants with rhizomes that can easily be found in our ecosystem

Using the rhizome metaphor, rhizomatic learning is suggested as the opposition to the traditional authoritative learning based upon behavioral views. Rhizomatic learning is rooted in constructivism which views students as active psychological beings rather than an object of classroom instruction. As a psychological being, instructional materials and activities are understood by students by using operational history which means constructing reality based on prior knowledge and past experiences (Lian, and Sussex, 2018). Learning is, therefore, personal as every student has different background knowledge and experiences which are incomparable to each other.

Personalized learning is of great importance for the rhizomatic view. Learning is adjusted to students' needs, rather than based on a predetermined curriculum mandated by the authority (Cormier, 2008; Lian, and Pineda, 2014). Therefore, the nature of the learning is dynamic and open-ended as it allows students to determine instructional material, mode, and duration to meet their needs (Lian, and Pineda, 2014).

However, literature discussing how to implement rhizomatic learning is still lacking. The approach needs to be broken down into more practical including model, method, procedure, and assessment.

Rhizomatic Learning for the 21st Century Learning

Students' future challenges inform how learning should be. In the 21st century, learning is believed should be personalized, feature creativity, critical thinking, collaboration, communication, technology use, and promote diversity and equity (American Association of School Librarians, 2007; Partnership for 21st-century skills, 2011; and Bolstad, Gilbert, McDowall, Bull, Boyd, and Hipkins, 2012).

In the context of Southeast Asia (SEA), the birth of the ASEAN Economic Community (AEC) results in new challenges for students. They will compete with not only people from their country but also people from other SEA countries. Moreover, English becomes increasingly more important as a communication tool in this period. This situation alarms English teaching practitioners to find a better way to achieve a better result.

Rhizomatic learning is subject to the above situations. The curriculum is "detachable, connectible, reversible, modifiable, and has multiple entryways and exits" (Cormier, 2008). It means that the learning community is the only authority to have the mandate to alter learning based on students' future. In the implementation, the curriculum can be adjusted anytime needed, even in the middle of a learning process.

In this respect, learning *just in time*, *just enough*, and *just for me* takes place. Learning happens only when students need it (*just in time*) with a sufficient amount of quantity (*just enough*) to solve a specific problem (*just for me*). It opposes traditional learning in which students are taught specific knowledge of a field *just in case* it is needed someday (Lian and Pineda, 2014).

The principle of *just in time*, *just enough*, and *just for me* seems to be difficult to implement in formal education in Indonesia. Even though the *Merdeka* curriculum, which supposedly promotes a constructivist view, has recently become the new national curriculum, it is difficult to shift from traditional instructional practices rooted for decades to a more modern learning approach.

Rhizomatic Learning in Computer-Assisted Language Learning

Technology-assisted learning is no longer just a choice, rather it has been a must. The era of the Internet of things (IoT) allows us to have more people and resources. Besides, students in this era are also born as digital natives as they get used to all these kinds of technology even from infancy. Therefore, 21st-century learning also means utilizing information and communication technology (ICT) for learning.

In the framework of CALL suggested by Thomas, Reinders, and Warschauer (2012) and Levy, and Stockwell (2013), CALL has the potential to offer a student-centered environment by employing more collaboration, and decentralization. Internet as a source of abundant information plays a positive role in creating a personal learning environment. Lian and Pineda (2014) suggest a sequence of personal learning environments using ICT operated by students themselves, namely inputting entry into the internet, immersing in unexpected discovery, consulting with experts inside and outside the internet, and benefitting from social and professional feedback received.

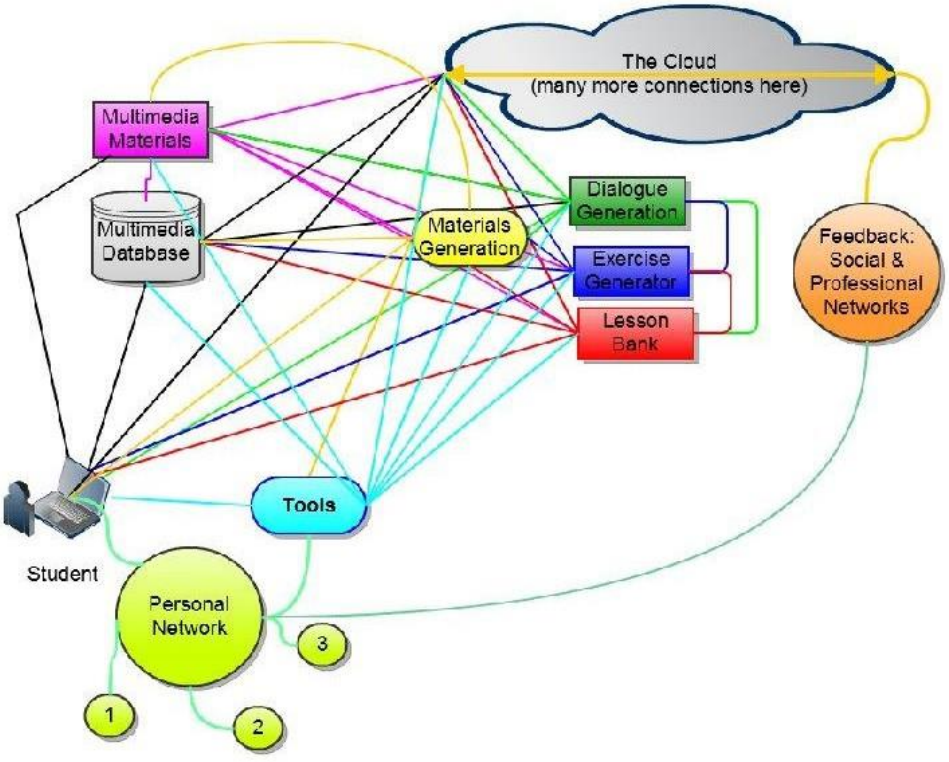

Figure 1. Personal learning environment through ICT (Lian and Pineda, 2014)

The teacher's guidance is absent in the above framework. Students might encounter a lot of distractions in their discovery process that may hinder learning. Besides, persistence is also

another issue as not all students are persistent enough to find an alternative way to find what they search for on the internet.

Higher Order Thinking Skills in Rhizomatic Learning through Flipped Classroom

In the practical sense, the flipped classroom could be a way to cultivate a personal learning environment that enables students to operate higher-order thinking. The flipped classroom is suggested to have a positive effect on students' higher-order thinking skills (HOTS), motivation, and satisfaction (Alsowat, 2016). In flipped classrooms, students have more time to explore what they want and what they need to know at home before they discuss them in the classroom. Students learning activities at home involve lower thinking order, while in the classroom they are engaged with higher-order thinking activities.

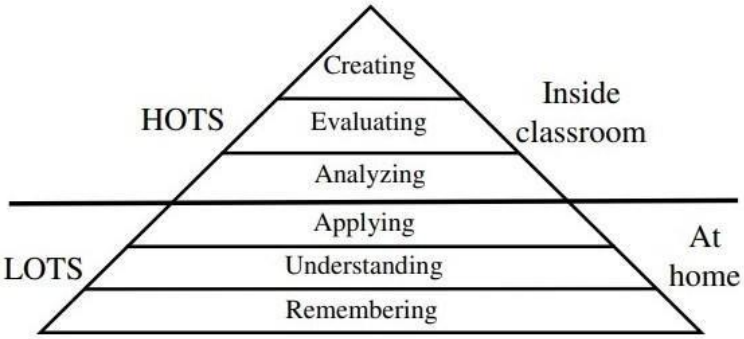

Figure 2. Thinking skills in the flipped classroom (Alsowat, 2016)

Another characteristic of a flipped classroom which is following rhizomatic learning is learning sustainability. Flipper classroom enables students to sustain learning even after the class ends (Schell and Mazur, 2015). Higher-order thinking activities carried out in the classroom intrigue students to discover more about particular knowledge of a field in the relation to their prior knowledge and experiences.

Higher-order thinking can be viewed from different perspectives. Wang and Wang (2014) discuss higher-order thinking into three paradigms, namely the non-discipline-specific non-skill-specific higher-order thinking paradigm, the non-discipline-specific skill-specific paradigm, and the discipline-specific paradigm. Non-discipline-specific non-skill-specific higher-order thinking is exemplified by career development, academic accomplishment, and extra-curricular learning. The non-discipline-specific skill-specific paradigm consists of problem solving, self-regulation, and creativity. Discipline-specific comprises rational thinking, design thinking, and systems thinking.

Concerning rhizomatic learning, flipped classrooms should not be limited to only involving non-discipline-specific skill-specific HOTS, such as problem-solving, self-regulation, and creativity. Non-discipline-specific skill-specific HOTS and discipline-specific HOTS should also be engaged to prepare students to work and live in the 21st century. Considering career development is one of the ways to elicit learning needs; thus, in line with the principle *just for me* as suggested by Lian and Pineda (2014).

Peer Scaffolding for Rhizomatic Learning

Peer scaffolding enables students so work collectively to meet learning objectives. As consequence, collaboration, communication, and problem-solving are promoted (Lai and Law, 2006; Nguyen, 2013). During collaborative writing, for instance, students were able to pool their linguistic knowledge and ideas, provide feedback, make suggestions and decline

suggestions, offer explanations, and repeat suggestions (Storch, 2008). Meanwhile, in the speaking classroom, students showed specific behaviors, such as pooling of ideas and resources, workload sharing, peer feedback, support in answering the audience's questions, technical support, and affective support (Nguyen, 2013).

Peer scaffolding, in this respect, does not mean two clueless individuals working in hand to achieve common goals. It is rather of interaction among novice students with experienced students (Lai and Law, 2006). This kind of interaction somehow reflects students' life after schooling where they do not always have an adult to take care of their problems.

As an approach derived from the constructivism view, rhizomatic learning puts peer scaffolding in a significant role as knowledge is negotiated through collaboration. The way individuals perceived reality is affected by their interaction with their surroundings and other individuals (Lian and Sussex, 2018).

Guided Inquiry for Rhizomatic Learning

Even though rhizomatic learning liberates students' ways, modes, and time of learning, teacher intervention is still required. The main reason is that "without guidance, students often approach the process as a simple collecting and presenting assignment that leads to copying and pasting with little real learning" (Kuhlthau, 2010). Guided inquiry does not refer to traditional learning in which the teacher acts as the source of knowledge in the classroom. Guided inquiry is an inquiry process involving planned, targeted, and supervised intervention occurred in six stages: initiation, selection, exploration, formulation, collection, and presentation. (Kuhlthau, 2010). With the teacher's guidance, students can focus more on constructing new knowledge and strategies in the process of information search.

Without a teacher's guidance, students might be lost in the process of discovery and end up learning nothing. Guidance plays as a boundary that students cannot pass to make them keep on learning track. With vast information provided, the internet, on one hand, can be a beneficial source of knowledge, but it can be a misleading source of information, on the other hand.

CONCLUSION

To prepare students to live and have careers in the 21st century, rhizomatic learning is worth more attention and exploration. Learning is no longer to meet predetermined learning outcomes mandated by the education authority. It is more negotiable and flexible central to students' needs. However, it does not meet the existing characteristics of education, particularly in Indonesia. To meet the condition, the approach needs to be adjusted by considering peer scaffolding, and guided inquiry through the flipped classroom.

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