

Fostering Creativity-Convergence Competency in an EFL Multiliteracies-based Literature Classroom

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The present study explores the educational potential of multiliteracies-based pedagogy to enhancing pre-service teachers' creativity-convergence competency in an EFL literature classroom. To examine the pedagogical effect, both quantitative and qualitative data were analyzed, including the pre- and post- creativity-convergence competency tests, participants' course evaluation questionnaire, and students' reflective journals. The results from the quantitative analysis indicated that multiliteracies pedagogy employed in the EFL literature classroom enhanced participants' creativity-convergence competency significantly ($p < .05$) in its all components, including creativity, problem-solving ability, convergent thinking ability, and self-efficacy. The findings in the analysis of participants' views on the positive potentials of the multiliteracies pedagogical approach in fostering learners' creativity-convergence competency were identified as follows: (1) use of multimodal resources in the communication process promoted their creativity-convergence competency, (2) transformative practices served as the facilitator to foster creativity-convergence competency, and (3) critical literacy practices helped them develop problem-solving ability and self-efficacy. The paper ends with some pedagogical implications and suggestions for further research.

Keywords: multiliteracies pedagogy, creativity-convergence competency, pre-service teachers, EFL literature classroom

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1. INTRODUCTION

The interest in the research on creativity and convergence-oriented education has been rapidly increasing recently across disciplines as well as in the field of EFL language and literacy education (Bang, 2017; Kim, 2017; Kim, Lee, & Woo, 2017; Lee, 2019; Lee & Lee, 2020; Shin, 2013; Yun & Lee, 2018). STEAM (Science, Technology, Engineering, Arts, and Math) education, for instance, has been promoted by the South Korean government as one of the key educational projects since 2011 (Shin, 2013), aiming to foster creative talents through understanding and combining two or more fields among science, technology, engineering, arts, and math (Cha et al., 2014; Kang, 2015; Yakman, 2012). This interest in creativity-convergence education has been more accelerated by the declaration of the advent of the Fourth Industrial Revolution at the World Economic Forum in 2015, where the need to nurture creative learners who can actively cope with the new challenges that humanity will face in the future society was strongly addressed. Furthermore, the Ministry of Education (MOE) in South Korea stressed on the significance of cultivating students' creativity-convergence competency as the key educational objective in the 2015 Revised National Curriculum (MOE, 2015). According to MOE, learners who are equipped with creativity-convergence are the ones who possess “humanistic imagination, creativity in science and technology, along with good personality” (MOE, 2015, p. 3). This emphasis on cultivating creativity and convergence competency for our next generation is continued in the recent 2022 Revised National Curriculum (MOE, 2022). Likewise, fostering students' creativity-convergence competency has become one of the most crucial educational concerns for both researchers and teaching practitioners with no exception in the field of EFL language and literacy education.

However, despite the growing research interest in creativity-convergence education in relation to English language and literacy education, the concept of creativity-convergence competency has not been agreed upon among scholars, as it has been used differently depending on the purpose of its use (Ahn & Shim, 2016; Kim, 2017). Pedagogical practices focusing on creativity-convergence competency development have been provided only as occasional events in a particular subject classroom, particularly in the elementary or secondary schools (Oh, 2019). According to a survey result on creativity and convergence education with elementary and middle school teachers, teachers reported that they were keenly aware of the need for creativity and convergence education, but the directions and teaching and learning models that could be specifically applied in the classroom were in dearth (Yun & Lee, 2018). It has been reported that there is a pressing need to educate both pre-service and in-service teachers to enhance their creativity-convergence competency through the development of pedagogical approaches or guidelines (Lee & Lee, 2018; Sung, 2019; Yun & Lee, 2018). This need was found to be greatest in high schools (Kang, 2015;

Lee & Lee, 2018; Yun & Lee, 2018), particularly in the English literature classrooms as there are no authorized textbooks or guidelines on how to develop students' creativity-convergence competency in those classrooms.

Training pre-service teachers how to implement creativity-convergence education is of significance as they are the ones who can lead creativity-convergence education as practitioners (Lee, 2017). To fill the gap in the research on the pedagogical model that can promote EFL learners' creativity-convergence competency, the present study attempts to posit that multiliteracies pedagogy can be one viable educational model to foster L2 learners' creativity-convergence competency in a teacher education setting. The current study, therefore, aims to explore the pedagogical potential of a multiliteracies-based pedagogical approach to fostering pre-service teachers' creativity-convergence competency in an EFL literature classroom.

Research on multiliteracies pedagogy has recently been increasing in both L1 and L2 contexts (Ajayi, 2012; Cope & Kalantzis, 2000; Hepple, Sockhill, Tan, & Alford, 2014; Holloway & Gouthro, 2020; Huh & Tseng, 2022; Kim, 2018, 2020; Lee, Lo, & Chin, 2021; Mills, 2009; New London Group, 1996; Pang, 2020; Yi, 2014). Postulated by the New London Group (NLG) in 1994, multiliteracies pedagogy aims to expand the traditional notion of reading and writing ability limited to print-based materials to a new notion of literacy that encompasses multiple literacies on multiple text genres, including texts realized by multimedia and digital technology. The pedagogy of multiliteracies also involves literacies on multiple identities with diverse linguistic and cultural backgrounds (Cope & Kalantzis, 2000; New London Group, 1996) who are involved in the act of communication, insisting that language learners need to acknowledge the purposes and perspectives in their messages in the process of communication.

Numerous studies have documented the benefits of multiliteracies-based pedagogical practices from various research foci, including its effect on L2 students' language ability development (Kim, 2018; Lee et al., 2021), academic performance (Angay-Crowder, Choi, & Yi, 2013; Hepple et al., 2014), critical literacy development (Ajayi, 2012; Chun, 2009), promotion of learner autonomy in learning (Kim, 2020; Lee et al., 2021), creation of culturally responsive learning environment that allows learners' funds of knowledge (Giampapa, 2010), and development of intercultural sensitivity (Huh & Tseng, 2022). Despite the growing scholarly interest with a wide range of topics in the research of multiliteracies pedagogy and its promising effects, there has been little research that explored the effect of a multiliteracies-based pedagogical approach on the EFL pre-service teachers' creativity-convergence competency. To fill the research gap, the current study investigates whether a multiliteracies-based pedagogical approach is effective to enhancing EFL pre-service teachers' creativity-convergence competency. The research questions for the present study are as follows:

- 1) Is the multiliteracies-based pedagogical approach effective to enhancing L2 pre-service teachers' creativity-convergence competency?
- 2) What perceptions do the pre-service teachers show about the relationship between multiliteracies pedagogical activities and creativity-convergence competency development?

2. LITERATURE REVIEW

2.1. Creativity-Convergence Competency and Research on Creativity-Convergence in the EFL Classroom

Before undertaking the conceptualization of creativity-convergence competency, we need to understand the concept of creativity and convergence separately. Defining creativity in a word is not easy (Runco, 2014) as the way scholars define it varies depending on the contexts of its use. Some people consider creativity as the problem-solving ability, while others understand it as uniqueness, originality, or divergent thinking ability. Still to other people, it can designate an innovative, technological invention (Kim, 2007). The approaches to researching creativity also differ according to how they think of the factors that affect one's creativity in terms of product, process, personality, or the environment (Kim, 2007). Creativity, at the early stage of its research, was defined primarily as "divergent thinking" ability. Postulated by J. P. Guilford in the 1950s, divergent thinking refers to the ability to generate ideas as many as possible to solve a problem (Guilford, 1956). Similarly, Torrance conceptualized creativity as "the process of forming ideas or hypotheses, testing hypotheses, and communicating the results" (Torrance, 1995, p. 23). Moon and Choi (2010) divided the components of creativity in terms of creative personality, divergent thinking, convergent thinking, and problem-solving ability. According to them, divergent thinking ability is the ability to produce ideas as many as possible on a topic or a problem, while convergent thinking means the ability to discern what is the most appropriate method to solve the problem and to identify and evaluate the perspectives behind any assumptions. Problem solving refers to a cognitive component that helps learners recognize or create a problem in the process of solving problems. More recently, Sternberg saw creativity as the ability to create "novel", and "valuable" ideas in a particular context (Sternberg, 2003, pp. 325-326).

Like the definition of creativity, understanding the concept of convergence has also varied according to the purposes and directions in its use. Through a review of relevant literature, Cho (2017) divided the concept of convergence into three: integration, consilience, and convergence. Roughly speaking, integration refers to a combination of knowledge in two or more different areas without the change of the nature of individual area. Integration can also

be understood as an environment where collecting knowledge from different areas takes place. Consilience is an interdisciplinary communication to identify any possibility to produce new knowledge in a problem-solving situation. In this process, communication between the knowledge based on an individual's background and the new knowledge can occur through a critical analysis. Convergence, however, can be understood as a total transformation of the integrated elements like a product made through a chemical transformation. The concept of convergence has to do with a knowledge product resulting from the process of integration and consilience (Cho, 2017). Based on the review of literature and by relying on Lee and Cho (2020), this study defines creativity-convergence competency as the ability to produce new knowledge through the process of generating original and appropriate ideas as many as possible and of integrating information in different areas through a critical analysis to solve a problem. Following Lee and Cho (2020), the working definition of creativity-convergence competency includes creative thinking ability, problem-solving ability, convergent thinking ability, and self-efficacy in its component.

Research on creativity-convergence development in the EFL South Korean contexts has been very limited (Cho, 2020; Jong & Jung, 2022; Lee, 2019; Lee & Lee, 2020; Song, 2018). With the research on this topic being in its initial phase, the topics for research have been divided as follows: the conceptualization of creativity-convergence (Cha, et al., 2014; Kim, 2017; Lee & Lee, 2018; Yun & Lee, 2018), analysis of English textbooks to investigate how the concept of creativity-convergence was reflected in the classroom activities (Sung, 2019), or development of teaching and learning models for creativity-convergence competency (Cho, 2020; Jong & Jung, 2022). For instance, Yun and Lee (2018) explored 171 teachers' understanding of the concept of creativity-convergence and argued that the pre-service teachers' understanding of the concept of creativity-convergence was not clear and coherent (Yun & Lee, 2018). In Yun and Lee's study (2018), teachers reported that the abilities related to creativity-convergence competency were problem-solving ability, creativity, communication ability, and critical thinking ability and that the development of teaching materials that they can model on was very necessary.

A few studies were carried out for elementary school students (Jong & Jung, 2022; Kim, 2017). Jong and Jung (2022) proposed a STEAM-based English literacy education model by integrating children's literature with other content area reading materials, while Kim (2017) attempted to conceptualize various pedagogical approaches of convergence education in the English language education. Cho (2020) developed a literature-based reading curriculum for high school students by focusing on how to develop creativity-convergence competencies addressed in the 2015 Revised National Curriculum. By analyzing literary works included in the authorized English textbooks and the survey results from students' and teachers' need analysis in teaching and learning "Reading English Literature" class, Cho (2020) developed lesson units and evaluation criteria that can be

applied to the EFL literature classrooms. Choi (2019) also developed the teaching and learning model that can develop the core competencies for high school students, which was proposed by the 2015 Revised National Curriculum, by focusing on reading a literary work *The Giver*. Sung (2019) explored the key concepts implied in the 2015 Revised National Curriculum and examined how the core concepts related to creativity-convergence competency were reflected in the content of middle school textbooks, such as math, social studies, or arts. The study conducted by Song (2018), one of the few studies with an experimental research design in a college general English classroom, documented that the project-based convergence English education was found to enhance students' English listening ability and creative personality significantly in the experimental group.

2.2. Research on Multiliteracies Pedagogy and Creativity-Convergence Competency Development in the L2 Classroom

A multiliteracies-based pedagogical approach is an integrative approach to teaching and learning literacy in that it posits that literacy is not only a cognitive phenomenon, but also a social practice (Cope & Kalantzis, 2000; Serafini, 2014). From the cognitive perspective, literacy is the phenomenon occurring only in the head of a reader or a writer. The primary tasks in literacy education in this view is to develop learners' ability to read and write a print-based linguistic text, where understanding the relationship between sound and letter, word recognition, sentence structure, or comprehension is involved (Baguley, Pullen, & Short, 2010). On the other hand, theorists viewing literacy as a social practice posit that literacy is social in its nature since a literacy event occurs in an interactive social relationship in which larger social, cultural, and ideological contexts are implicitly influencing on people's meaning-making practices (Kern & Schultz, 2005). According to this perspective, people should understand with whom they are communicating, in what form, and with what purposes. Multiliteracies pedagogy aims not only to develop learners' reading and writing abilities, but also to nurture their understanding of the purposes and larger social, cultural, and ideological assumptions embedded in people's messages (Cope & Kalantzis, 2000; Serafini, 2014).

The term multiliteracies was first proposed by the New London Group in 1996 (Cope & Kalantzis, 2000). The basic argument they made was that the scope of literacy should be expanded from the traditional notion of skills-based reading and writing ability to multiple literacies. According to them, the expanded notion of literacy is necessary as the context of communication has changed due to the globalization and the advancement in the communications technology. There are two implications in the use of the word "multiple": first, the meaning of "multiple" in the diversified meaning-making contexts depending on the identities of the language users with different social and cultural backgrounds, which has

resulted from globalization. Secondly, the “multiple” in the text format, in which people communicate their ideas by integrating more than two design elements out of the linguistic, audio, visual, gestural, spatial, and/or multimodal ensemble (Serafini, 2014) that has been enabled by the advancement of the digitalized multimedia technology. Therefore, educators need to teach students how to read and write messages conveyed in the multiple modes, including understanding of the purposes and perspectives in them.

The pedagogical components of multiliteracies are divided into four: situated practice, overt instruction, critical framing, and transformed practice (Cope & Kalantzis, 2000, 2015), each of which can also be understood as experiencing, conceptualizing, analyzing, and applying, respectively. A more detailed description of each pedagogical component is provided as follows in Table 1. The four pedagogical components can serve the guide for what to teach in a multiliteracies classroom.

TABLE 1
Components of Multiliteracies Pedagogy (Cope & Kalantzis, 2000, 2015)

Pedagogical Component	Pedagogical Foci
Situating practice (= Experiencing)	Teaching the known and the unknown to the learner in connection with the text content (e.g., connecting students’ prior experience with the content in the reading material)
Overt instruction (= Conceptualizing)	Teaching important concepts in a particular discipline (e.g., literary devices, or story elements in a literature classroom) Asking students to discover any repeated patterns through the inductive analysis of content, and to reach a generalization (teaching metacognitive knowledge)
Critical framing (= Analyzing)	Analyzing the function of a text Interrogating the power relation between the people who are involved in the communication
Transformed practice (= Applying)	Applying knowledge learned in the classroom to the real- world situations.

The component of situated practice is based on the acknowledgment that human knowledge is situated and that our meaning-making is grounded in our experiences. As our cognition is influenced by our real-life situation, activating students’ background knowledge in understanding the content of reading is very necessary in a situated practice. In this practice, students can also pay attention to the unknown aspects which they need to newly learn in the reading process. In the overt instruction, students learn the core concepts in a particular academic discipline. For instance, if they are reading a literary work, students can learn specific literary devices, such as symbols or imageries in a poem. The teachers can teach these concepts explicitly to the students or have them discover how the imageries were repeatedly used in the poem as a pattern, which will eventually promote the development of students’ interpretive ability about the literary work. In the critical framing phase, there are

two aspects students need to attend: first, they should engage in the analysis of the functions of language in a specific context; second, they also need to analyze the ideological assumptions in the messages conveyed. Lastly, the transformed practice has to do with teaching students how to apply what they have learned in the class to new contexts in real-life situations.

Concerning the research that investigated the relationship between multiliteracies and creativity-convergence competency development for L2 learners, a few studies have explored the pedagogical potentials of multiliteracies to enhance learners' creativity-convergence competency across subject areas and school levels (Rajendram, 2015). Students' understanding of important concepts in the chemistry classroom, for instance, was enabled by the students' use of digital technologies in the study with high school students conducted by Hilton, Nichols and Gitsaki (2010). Students in this study were introduced a software called molecular modelling, through which they were helped to understand the concept of chemical bonding. The study highlighted that the use of multiple representational channels in understanding the concept promoted their understanding of the concept better as well as their skill to utilize available designing elements on the internet. Use of multimodal resources, such as visual poem, was found to promote learners' problem-solving abilities more in the math classroom compared to the group who did not use the visual poem as resource in problem solving (Bataller, Ferrando, & Reyes-Torres, 2022).

A body of research addressed the educational potential of multiliteracies pedagogy in promoting learners' creativity-convergence competency in association with the notion of "transmediation". Transmediation refers to a process in which learners translate "the content of one sign system into another" (Suhor, 1984, p. 250). Suhor argued that allowing students to use multiple signs in meaning making can amplify learners' capacity in its full potential. In a multiliteracies classroom, learners come to engage in transmediation while reading and writing a multimodal text. In a study with the elementary school students, Short, Kaufmann and Kahn (2000) employed multimodal response writing in reading literature, arguing that having students to respond to literature with multimodal signs offered them the opportunity to develop as creative and critical thinkers. In an EFL context in Spain, Guillén and Bermejo (2011) reported that students in their study engaged in creative writing by incorporating music, or arts, in addition to language, and contended that using diverse modes in their writing added creative dimension in the students' composition.

Another promising pedagogical potential multiliteracies pedagogy can provide for language and literacy educators in cultivating learners' creativity-convergence competency can be found in its component of transformed practice, in which students should apply what they learn in the class to a new context (Ajayi, 2012; Burke & Hardware, 2015). In many transformed practices, students engage in multimodal reading and writing projects (Ajayi, 2012; Burke & Hardware, 2015; Kim, 2018; Turner, 2008), and many studies reported on

the benefits of engaging students' creation of multimodal writing projects, such as digital life stories in the classrooms (Benmayor, 2008; Walsh, 2007), arguing that digital story-making enabled learners to develop intellectually and creatively by helping them engage in the integration of knowledge across disciplines and develop critical and creative thinking abilities. Benmayor writes, "Making a digital story involves the skills of conceptualizing, writing, performing, selecting, imaging, integrating, and signifying". (Benmayor, 2008, p. 195). Research has shown that multiliteracies pedagogy can enhance learners' creativity, convergent thinking ability, and problem-solving ability (Benmayor, 2008; Holloway, 2021). Holloway (2021) investigated the pre-service and in-service teachers' engagement in creating an online pedagogical tool in which lesson plans based on the multiliteracies pedagogical model were embedded. She contended that the multiliteracies project allowed them to develop their creative thinking and problem-solving abilities, and self-efficacy as pre-service teachers through the process of planning their lessons.

3. METHODOLOGY

3.1. Research Context and Participant

The present study was carried out in a teacher education context, in which the course "Teaching British and American Literature in the EFL Classrooms" was taught for pre-service teachers during the fall semester of 2021. The course was offered to the pre-service teachers in the Department of English Education as a required course and was taught all in English. As the course was a requirement to the first-year students in the Department of English Education, the age of the participants ranged from 18 to 20. The course was taught online due to the COVID-19 pandemic and offered twice a week for 75 minutes each. As the course aimed to help EFL pre-service teachers develop their interpretive repertoires as both readers and teachers of literature in the future, the course reading materials ranged diverse literary genres, including fiction, short story, drama, and poetry. The classroom activities were carried out focusing on the instructor's mini-lectures, discussions on the assigned readings based on their previously assigned response journals, and classroom presentations either individually or in groups. As most of the participants were very fluent in speaking and writing, they were very active in the classroom activities.

The number of pre-service teachers who took the class was originally 31, 19 females and 12 males, but those who participated in both the pre- and post- creativity-convergence competency tests were 21. Therefore, the number of participants who were counted in the quantitative data analysis was 21, whereas the participants who responded to the course evaluation survey were 27. Part of the reason in the reduction of the number of respondents

to the survey questionnaire was because it was conducted on the voluntary basis. In addition, as the survey was administered on the last day of class, several students were absent from the class due to the pressure for their final exam for other classes. The researcher taught the course as the instructor and the creativity-convergence competency tests were conducted twice, one at the beginning of semester, and the other on the final day of the semester. The teacher-researcher provided the participants with information on the research when carrying out the pre-test with the explanation that their participation in the research would be on the voluntary basis and that they would not be disadvantaged by not responding to the tests and the survey questions.

Regarding the participants' English proficiency, a survey was conducted at the beginning of semester in a form of self-report before they participated in the Creativity-Convergence Competency Test. About two-third of participants reported their English proficiency as in an advanced level, whereas five of them were in the high-intermediate level. Five other students showed no record of standardized test (See Table 2). One participant was a native English speaker as an exchange student. The average TOEIC score participants reported were 925, with most of them fluent in both speaking and writing in the classroom discussions and writing assignments. As the Creativity-Convergence Competency Test was written in Korean, the researcher translated it into English since there was one international student.

TABLE 2
Participants' Self-reported Profile for English Proficiency

Participants' Self-reported TOEIC Score	Number of Students
Above 900	21
Above 800 ~899	5
No Standardized Test Record	5

3.2. Data and Data Analysis

To investigate participants' creativity-convergence competency development, the researcher relied on Lee and Cho (2020)'s Creativity-Convergence Competency Test for Adolescents by adapting it to the need of the current study (See Appendix). To provide the rationale for choosing Lee and Cho (2020)'s study as the measurement tool for the present study, first, it was related to the participants' age. Since the participants for this study were all freshman, to whom this course was required, the researcher considered they are still in their adolescence, whose age ranges from 9 to 24 years old (Ministry of Government Legislation, 2023). The Creativity-Convergence Competency Test was made in a 5-point Likert scale with 30 question items. It comprises of the four core components: creativity, problem-solving ability, convergent thinking ability, and self-efficacy. Creativity component

in this scale has to do with the divergent thinking ability, which tests participants' ability to generate original ideas as many as possible. Problem-solving ability is related to recognizing a problem, understanding the problem, analyzing the problem, and discovering the solution to the problem. Convergent thinking ability refers to the ability to fuse interdisciplinary knowledge through recognizing any relation between different areas and create new knowledge through the process. Self-efficacy is linked to an individual's positive attitude toward one's failures, and their confidence in being able to handle the problem in a self-directed manner. The reliability of all components in Lee and Cho (2020)'s study was reported to be very high in the Cronbach's measure ($\alpha=.915$). In this study, the number of question items for creativity was 6 with the high reliability in Cronbach's α measure ($\alpha=.769$). Questions for problem-solving comprised of 12 items and were found to be reliable ($\alpha=.754$). The questions for convergent thinking ability were 6 and they were found to be reliable in Cronbach's α measure ($\alpha=.840$). The 6 items of self-efficacy test were also reliable in the α measure ($\alpha=.712$).

For the analysis of the pre- and post- tests of creativity-convergence competency, a Wilcoxon Signed Rank Test was conducted using SPSS 21 as the number of participants in both pre- and post- tests was less than 30, which can be more appropriate to a nonparametric test. The question items for each component of the creativity-convergence competency were converted into each component, respectively, including creativity, problem-solving ability, convergent thinking ability, and self-efficacy.

To explore participants' perceptions of the relationship between multiliteracies pedagogy with the development of creativity-convergence competency, the researcher developed an open-ended type of questionnaire composed of 5 items, out of which only two question items are related to the current study. The questions were as follows: (1) Do you think the pedagogical approach of multiliteracies developed your or your students' ability for creativity and convergence? If so, in what sense? If not, in what sense? (2) What classroom activities were helpful to improving your creativity-convergence ability in this course? If any, in what sense? If not, in what sense? As some participants' comments were written in Korean, those were translated into English by the researcher. The survey results were also analyzed qualitatively until repeated patterns emerge (Merriam, 2009) with the purpose to triangulate the results from the quantitative data analysis. Participants' reflective journals written right after they completed their midterm assignment were also analyzed based on the "purposeful sampling" method (Merriam, 2009, p. 79).

3.3. Teaching Procedure

The main objective of the course the teacher-researcher taught was to provide pre-service teachers with the repertoires of how to read the British and American literary works across

genres based on the multiliteracies pedagogical framework and of how to teach their students literary works in the EFL classroom. To scaffold them, the teacher-researcher introduced the pedagogical framework of multiliteracies to the students at the beginning of semester. From week 3, students engaged in the classroom discussions on the novels, short stories, plays, and poems that they had already read at home, based on the four components of the multiliteracies pedagogy, including situated practice, overt instruction, critical framing, and transformed practice (See Table 3 for sample activities and assignments). To help participants understand the pedagogical framework, the researcher provided questions for them to discuss the reading materials under the four pedagogical components. All the classroom discussions and presentations were made online due to the situation of COVID-19 pandemic.

TABLE 3

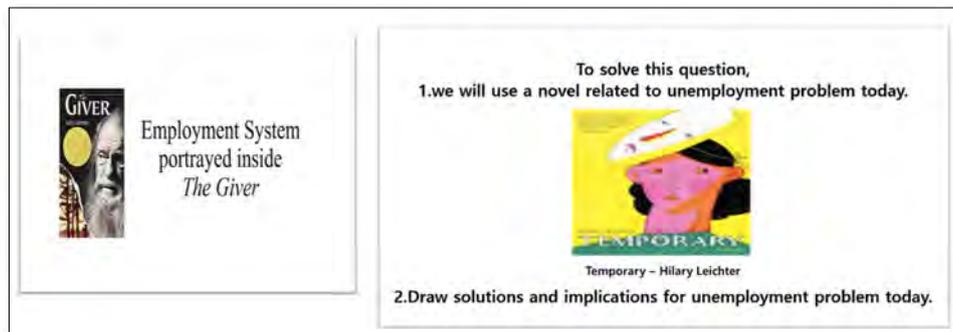
Course Readings and Activities Based on the Components of Multiliteracies Pedagogy

Reading	Sample Classroom Activities Based on Multiliteracies Pedagogy	
	Pedagogical Component	Sample Activity
<i>The Giver</i> (1993) by Lois Lowry	Situated practice	Thinking about daily events on the news and what issues you want to change
	Overt instruction	Identifying examples of “foreshadowing” in chapter 1 of <i>The Giver</i>
	Critical framing	Discussing whether Jonas’s assignment as the “next receiver of memory” in this novel punishment or an honor
	Transformed practice	Creating a multimodal story project by imagining a utopian society where a social problem to be solved in connection to any dystopian aspect in <i>The Giver</i>
<i>Robinson Crusoe</i> (1623) by Daniel Defoe	Situated practice	Choosing only one item you want to bring when you are forced to live in a deserted island
	Overt instruction	Thinking about setting, characters, and plot of the story
	Critical framing	Writing on a diary from the perspective of Friday
	Transformed practice	Retelling the ending of the story
<i>Roll of Thunder, Hear My Cry</i> (1976) by Mildred Taylor	Situated practice	Sharing previous experience of your being discriminated
	Overt instruction	Creating a relationship tree focusing on the main characters
	Critical framing	Thinking about how characters in this fiction react against racism
	Transformed practice	Brainstorming classroom activities in groups
“The Story of an Hour” (1894) by Kate Chopin	Situated practice	Comping up with ideas about gender-based roles in Korean society
	Overt instruction	Discussing dramatic irony

	Critical framing	Discussing how the author portrays Mrs. Mallard's interior mind
	Transformed practice	Making marital agreements with your spouse
"The Road Not Taken" (1915) by Robert Frost	Situated practice	Sharing personal experiences when you had to make an important decision
	Overt instruction	Discussing symbols used in the poem
	Critical framing	Discussing advantages and disadvantages of taking the road not taken
	Transformed practice	Rewriting the poem into a prose style

In the course the researcher taught, there were four main assignments. First, students had to write multimodal reading response journals, for which integrating multimodal sources, such as images, sounds, or drawings, was optional. Second, students were assigned to create a multimodal project in groups after reading *The Giver* (1993) written by Lois Lowry. To briefly explain, a young adult novel *The Giver* is depicting a dystopian society where education, people's occupation, sexuality, language use, reproduction, and freedom to choose spouses are entirely controlled by the committee members from the center. It also portrays a 12-year-old boy Jonas' coming-of-age in that it delineates the process of Jonas' growing up as a Giver, who holds the whole memory of the community, later becoming acutely aware of the way the society has been controlled by the central government with the critical lens. The midterm project was a collaborative research project in which students should imagine a utopian society by selecting one social problem Korean society currently confronts. To do this project, students had to work in groups, firstly brainstorming ideas to identify a problem among the situations in *The Giver*, do some research to solve the problem by dividing their roles, and finally present their project outcome in the class (See Figure 1 for sample group's project cover page). Third, pre-service teachers were required to write a short report on one instructional strategy that can foster creativity-convergence competency in their future classroom by selecting one part from the reading materials they had read during the semester. Lastly, they were assigned to create a lesson plan by choosing a part of reading from our reading materials we had covered during the semester based on the pedagogical framework of multiliteracies, about which students had a presentation time during week 15 and 16.

FIGURE 1
Sample Slides from Pre-service Teachers' Multimodal Problem-Solving Group Project



4. RESULTS AND DISCUSSION

4.1. Improvement in the Creativity-Convergence Competency

To examine the effect of implementing the multiliteracies pedagogical approach on the EFL pre-service teachers' creativity-convergence competency in the literature classroom, a Wilcoxon Signed Rank Test was administered ($p < .05$). The results on the improvement in the participants' creativity-convergence competency are presented in Table 4 below.

In the analysis of the participants' creativity component, the results revealed that it was found to be significantly enhanced ($Z = -4.025, p = .000, p < .05$). The pre-service teachers' problem-solving ability was also significantly improved with the difference in the mean ranks, with $Z = -2.037, p = .042$ at the level of $p < .05$. The improvement in the participants' convergent thinking ability was identified significant as well ($Z = -3.068, p = .002, p < .05$). In the analysis of the participants' self-efficacy, the result showed that the multiliteracies pedagogical approach was effective to the enhancement of the pre-service teachers' self-efficacy at a significant level ($Z = -2.002, p = .045, p < .05$). To summarize, the quantitative data analysis indicated that the multiliteracies pedagogical approach was effective to the development of EFL pre-service teachers' creativity-convergence competency significantly.

The results in the Wilcoxon Signed Rank Test in this study are supportive of the argument in Holloway's (2021) study and Benmayor's (2008), where students who engaged in the multiliteracies pedagogical activities demonstrated enhancement in their creative thinking and convergent thinking abilities even though the abilities were not quantitatively measured in their studies. The studies that integrated multimodal writing or digital storytelling as one representative instructional strategy in the multiliteracies classroom documented that

students' creativity and convergence competency can be fostered in the process of integrating multiple design elements into their story (Benmayor, 2008; Serafini, 2014; Short et al., 2000; Walsh, 2007). It is because digital storytelling provides students with the opportunity to develop multiple literacies, including "visual literacy, media literacy, critical literacy, computer literacy, and other types of literacies" (Serafini, 2014, p. 26). It is possible because in the process of creating a story they first need to synthesize knowledge from multiple sources, combine ideas from diverse areas, make new connections between apparently unrelated concepts, in which their creative and analytical thinking, which can be understood as convergent thinking, can also be cultivated (Benmayor, 2008; Short et al., 2000).

TABLE 4
Results of the Creativity-Convergence Competency Tests

Component	Ranks	<i>n</i>	Mean Rank	<i>Z</i>	Asymp. Sig. (2-tailed)
Creative Thinking	Negative Ranks	0	0.00	-4.025 ^b	.000 ^a
	Positive Ranks	21	11.00		
	Ties	0			
	Total	21			
Problem Solving	Negative Ranks	6	9.50	-2.037 ^b	.042 ^a
	Positive Ranks	15	11.60		
	Ties	0			
	Total	21			
Convergent Thinking	Negative Ranks	3	7.83	-3.068 ^b	.002 ^a
	Positive Ranks	17	10.97		
	Ties	1			
	Total	21			
Self-Efficacy	Negative Ranks	5	9.10	-2.002 ^b	.045 ^a
	Positive Ranks	14	10.32		
	Ties	2			
	Total	21			

a. Wilcoxon Signed Ranks Test ($p < .05$)

b. Based on negative ranks.

4.2. Students' Perceptions on the Relationship Between Multiliteracies Pedagogy and Creativity-Convergence Competency Development

The findings from the analysis of students' responses from the course evaluation survey and of the comments in the students' reflective journals, three themes emerged repeatedly. That is, the participants' perceptions on the relationship between the multiliteracies pedagogical practices with the development of creativity-convergence competency were divided into three categories: (1) use of multimodal resources in meaning-making as the facilitator for creativity-convergence competency development, (2) transformative practices promoting learners' creativity-convergence competency, and (3) critical literacy practices facilitating development of problem-solving ability and self-efficacy.

4.2.1. Use of multimodal resources in meaning-making as the facilitator for creativity-convergence competency development

One important theme emerging from students' responses in the course evaluation survey and reflective journals was that using multimodal resources provided them with the opportunity to express their thought in more diverse ways. In the question as to whether they think the multiliteracies-based pedagogical activities were related to the development of creativity-convergence competency, some students responded as follows:

It may be related to the development of creativity-convergence because there are few restrictions on the way of expressing ideas, and even the same content may have different techniques to be used or considered depending on the way to express them. Even if you tell a story, it is just writing, and there are different things to consider when making it into an audiobook (voice, breathing, etc.) I think that the ability to apply idea and creativity can arise in order to know the characteristics of the medium you want to use and utilize it. Also, since I get to know the English expressions used in such media, I think education can be done in various fields and I think it is a complex activity. (S2)

Most of the classes helped develop the creative convergence competency, but it seems to have helped the most in developing the "digital storytelling" creative convergence competency, which was submitted as the midterm assignment. It was a pleasant and good experience to be able to demonstrate a lot of creativity while using other related literature or making animations through the main theme of "what our society needs to improve for a utopian society." (S4)

Preparing this project, we learned that a multimodal project can make the audience understand the presentation more easily. To be specific, we adopted a news style video for the multimodal material. While making the video, we tried to make it look like real news by designing the TV program and acting out like a reporter or an anchor. Although it was a bit tiring and had a lot of things to do to prepare a multimodal project, we think giving a multimodal content to students would be a more effective presentation than giving a one-sided explanation. (S5)

One common argument in the above excerpts from the students' responses was that their use of multimodal resources to deliver their message allowed them to express their ideas in more diverse ways than when they relied on only the linguistic resource. In other words, they pointed out that their being able to use not only the language, but also the visual, the aural, or the gestural design element helped them develop creative thinking and convergent thinking abilities. Like S2 pointed out in the excerpt, the use of multimodal channels of communication could expand the knowledge about the available resources to express their ideas, through which they could have more opportunities to gain knowledge about "different techniques" in expressing their ideas (Cope & Kalantzis, 2000; Yi, 2014). For instance, in case of S4, he participated in a group project creating a multimodal story dealing with the unemployment problem in our society and provided solutions for that in response to their reading of the novel *The Giver*. One impressive aspect the group project demonstrated was that they attempted to integrate another literary work, entitled *Temporary* (2020) by Hilary Leichter, which was dealing with temporary workers' lives to help classroom mates understand the situation of the unemployed. They also inserted a digital story in a form of animation to explain the concept of unemployment and provide ways to solve unemployment problems in Korean society.

S5's comment implies that fostering students' creativity-convergence competency could have been possible in the process of their undertaking several multimodal projects with multimodal resources, including digitally mediated multimedia technology (Walsh, 2007). Firstly, in the process of brainstorming ideas to identify problems and coming up with solutions through discussions and research, they could develop creative thinking and problem-solving abilities (Torrance, 1995). In the process of multimodal meaning-making, the multimodal text creators need to create a new meaning through "transmediation" in which one sign system is to be interpreted differently in association with another sign-system (Suhor, 1984; Yi, 2014). Arguably, in this process the learners' psychomotor power of creative thinking could have been activated, facilitating the development of creative thinking. It can also be contended that developing convergent thinking ability and problem-solving ability could have been facilitated in the process of analyzing and combining ideas from

various reading materials and by capitalizing on the multimodal design elements available to them (Suhor, 1984; Walsh, 2007).

Students' comments above suggest that multimodal resources expanded creative meaning potential (Kim, 2018). In this sense, the multiliteracies pedagogical practices in this study served as "an environment that promotes creative thinking and exposes the learner to multiple and multi-modal ways of presentation," promoting "learners' confidence to raise innovative ideas and construct imaginative solutions" (Koran, Klavia, & Goadetsky, 2005, p. 196). Like the comments students made, it can be argued that allowing learners to utilize multimodal resources in conveying their messages served as a conduit for them to express their ideas more "abundantly" and creatively by providing them with more freedom to choose resources in expressing their ideas.

4.2.2. Transformed practices' promoting EFL learners' creativity-convergence competency

Another common argument that emerged from the pre-service teachers' answers was that activities under the component of transformed practice itself facilitated cultivation of their creativity-convergence competency. The following comments show this point explicitly or implicitly.

Applying all four theories of multiliteracies education to organize classes not only helps students to fully understand and understand a given book or text, but also encourages students to actively create new stories and find connections with reality. I think it can improve thinking skills and maximize the use of what you have learned. (S6)

Multiliteracies pedagogy makes the student think within the shoes of character in the book and I think this is related to creativity development...However, with multiliteracies pedagogy, the teacher teaches the student one thing, then the student, on his own, has to take that thing which he has learned and has to apply it into a different context by himself. In this process, the student is forced to think outside the box of what the teacher has told him and has to think himself in order to accomplish the task which forces that student to use his creativity. (S7)

I think the pedagogical approach of multiliteracies is a teaching-learning theory that developed teacher and students' ability for creativity and convergence... For example, students will be able to fully improve creative convergence capabilities in the process of logically expressing their thoughts or experiences through discussions and expressing what they feel in poetry or reconstructing them into short texts. (S5)

Studies have documented that multiliteracies pedagogical approach in the L2 classrooms provide learners with opportunities to apply their knowledge of language and culture to a variety of contexts and media (Ajayi, 2012; Turner, 2008), fostering learners' creativity as well as critical thinking ability. As Ajayi (2008) argued, "the pedagogy of multiliteracies/multimodality can be used as a tool to facilitate transformative goals in meaning-making classrooms for English language learners" (Ajayi, 2008, p. 208). The possibility of developing learners' creativity-convergence competency in the transformed practice lies in the process of applying learned knowledge to a new context. For the students to apply what they learned in the classroom, they first need to exercise convergent thinking, which involves comprehension and analysis of content in diverse areas in the process of transferring the knowledge to a new context. For instance, knowledge transformation can take place in the process of "expressing what they feel in poetry or reconstructing them into short texts" as stated S5's comment. To explain more about S5's comment, pre-service teachers in this study were asked to rewrite "The Road Not Taken", a poem by Robert Frost in a prose style of a diary writing under the component of transformative practice. Having them change from the poem to a prose style writing to help them understand the overall meaning of the poem, allowed them to think over what generic convention they need to follow in transferring their knowledge to a new writing style.

It can be contended that fostering convergent thinking and creativity can be possible as the exercise of converging ideas is part of multiliteracies pedagogy. By relying on the interaction with a variety of media and texts (Cope & Kalantzis, 2000; Yi, 2014) in the meaning-making process, L2 learners come to reach an understanding of the interconnection between modalities of linguistic text, image, and sound in their meaning-making. The transformation of knowledge relying on multimodality can be compared to the NLG's notion of a "design-based" pedagogical framework (Cope, Kalantzis, & Abrams, 2017) as it is grounded on the reworking of available resources, which are usually multimodal. To convey the meaning in their multimodal project, pre-service teachers could rework the semiotic resources available to them to create their meaning, through which their creativity could be enhanced (Hasset & Wood, 2017).

4.3. Critical Literacy Practices Promoting Development of Problem-Solving Ability and Self-Efficacy

Lastly, participants' comments in the survey and reflective journals demonstrate that engaging students in the multiliteracies pedagogy enabled them to develop problem-solving ability and self-efficacy as future teachers, and that this was possible through critical literacy practices and repeated scaffolding of how to teach literature based on multiliteracies pedagogy. One student below comments that a multiliteracies-based pedagogical approach

helped them to think about the issues in reading literature beyond mere comprehension of the content of reading. Particularly, the critical framing practices constantly scaffolded them how to interpret the relationship between characters in terms of the social, historical, political, and ideological aspects.” S9 writes,

I think it can help teachers and students develop their creative convergence capabilities. I believe that understanding between society and education can be enhanced through the process of describing what historical background is hidden in the content and what the intention of the actor is, rather than simply understanding the content. I think that the most important point in cultivating creative convergence competency is the formation of readers’ independent thoughts, and multiliteracies education can fully achieve that purpose. (S9)

What is notable in S9’s comment in the above is that the critical framing practices helped them develop their creativity-convergence competency as they were the learner-centered classroom practices, encouraging them to think independently from a critical stance. A similar notion was also found from other students’ comments below.

The knowledge gained through the test quickly disappears from their memories, but the social critical team project is meaningful to encourage students to find problems and draw solutions themselves. As they constantly think about the series of processes to derive solutions, the lessons and knowledge learned through the project will remain in their memories for a long time. (S11)

I think it’s a teaching-learning theory that helps. This is because various teaching methods and materials can be mobilized according to the purpose for each item divided into four categories, and creative convergence capabilities can be cultivated in the process of coming up with the materials and teaching methods from the teacher’s point of view. Also, since multi-literacy education is carried out using other media, teachers will be able to help students to be creative and think about problems in many ways in the process. (S14)

Participants’ comments above are in support of the argument that multiliteracies pedagogy promoted learners’ critical literacy by helping them to think about the socio-political, ideological aspects in understanding the issues and the relationship among characters while reading literary works and that engaging in the classroom activities based on the pedagogical

framework fostered their problem-solving ability and self-efficacy as a teacher (Ajayi, 2008; Turner, 2008; Yi, 2014.). For example, S11 writes, “this project had a great influence on my thoughts on teaching method of English literature. If I become a teacher, I will focus on such social critical team projects rather than exams.” This implies that providing students with an opportunity to think about the social issues from a critical perspective can promote developing students’ self-efficacy as well as problem-solving ability. It can be argued that in the process of finding out social problems represented in a literary work, looking at issues from a critical lens could have served as the first step to help identify problems in the process of problem-solving. As S11 argued, one strength of multiliteracies pedagogy was that multiliteracies pedagogical experiences were “meaningful to encourage students to find problems and draw solutions themselves (S11)”.

5. CONCLUSION AND FURTHER SUGGESTION

The present study explored the educational potential in the multiliteracies pedagogical approach in fostering pre-service teachers’ creativity-convergence competency in the EFL literature classroom. The results in the quantitative data analysis demonstrated that the multiliteracies pedagogical practices were very effective to the cultivation of EFL pre-service teachers’ creativity-convergence competency significantly in its all components, including creativity, problem-solving ability, convergent thinking ability, and self-efficacy. In the analysis of participants’ perceptions on their learning experiences of multiliteracies pedagogical practices in relation to the development of their creativity-convergence competency, participants’ comments corroborated the results from the quantitative data analysis, serving as triangulation. The EFL pre-service teachers’ arguments can be summarized as follows: (1) Use of multimodal resources in their meaning-making promoted their creativity-convergence competency in the process of understanding and analyzing each sign system’s function and creating their messages. (2) The transformed practices were found to be very helpful to enhancing their creativity-convergence competency in the process of applying what they learned to the new contexts. (3) The critical framing and transformed practices in the multiliteracies pedagogical framework helped them grow as a critical problem-solver and develop self-efficacy as future teachers. While engaging in the critical framing and transformed practices, they could not only comprehend the reading content on the surface, but also think about the assumptions behind the social issues and relationships among characters more deeply.

The positive results in this study validated the arguments in the previous studies that multiliteracies pedagogy can be one viable educational model foster learners’ creativity development, convergent thinking ability (Benmayor, 2008; Holloway, 2021; Walsh, 2007),

and critical literacy (Ajayi, 2008, 2012; Yi, 2014). Given that the research that investigated the positive pedagogical effects of the multiliteracies education in the EFL setting, particularly the one that focused on creativity-convergence education with quantitative data has been very rare, the results of this study will be very significant in the research on the multiliteracies pedagogy to show its positive pedagogical potential in the L2 contexts.

However, the present study is not free from its limitation. First, as the number of participants in this study was very small, a study with more participants and in an experimental research design will yield different results. Second, as most participants in this study were in the high-intermediate or the advanced level in their English proficiency, and they are the first-year pre-service teachers, research with students in different English proficiency levels with different years of school is further needed. Third, due to very limited availability of the creativity-convergence scales to be used for this study, there should be some limitation in generalizing the study results. Further study to develop more appropriate scale of creativity and convergence competency for EFL learners is needed. Lastly, as the course teaching was conducted online, which could have limited pre-service teachers' active interactions, particularly in the group discussion sessions, different research results could have been produced if the teaching was carried out offline.

Regarding the pedagogical implications, it can be suggested that developing a variety of classroom tasks that can promote L2 learners' creativity-convergence competency is needed. Particularly, integrating multimodal materials in their reading and writing activities is called for as communication is currently being conducted multimodally in our students' everyday lives (New London Group, 1996). In addition, classroom tasks in the EFL classroom should include activities to develop learners' critical literacy through which they can understand not only the function of writing, but also the ideological dimension in the act of reading and writing in this more diversified communication landscape than before (Cope et al., 2017). Inclusion of project-based classroom assignments as transformative practices is strongly recommended as it can cultivate L2 learners' creativity as well as problem solving ability (Karan & Brown, 2022). Lastly, creating an inter-disciplinary curriculum based on collaboration with other subject area teachers should be encouraged across school levels to enhance L2 learners' creative and convergent thinking abilities.

Applicable levels: Tertiary, secondary

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APPENDIX

Creativity-Convergence Competency Survey Questionnaire

* **Direction:** The following statements inquire about your thoughts and feelings about creativity and convergence ability. For each statement below, please put the check mark (v) in the blank, which can be applied to you most and provide detailed reasons as much as possible. You can put the check mark (√) under each category that fits your opinion.

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
5	4	3	2	1

NO.	Statement	Strong-ly dis-agree	Dis-agree	Don't know	Agree	Strong-ly agree
1	I think about the topic of a story in several directions, not just in one way.					
2	I perform tasks in a unique and individual way.					
3	I try new ideas or approaches to accomplish tasks.					
4	I can come up with new ideas through a change of thinking.					
5	I tend to come up with a lot of new and original ideas.					
6	I think about new ideas more often than others.					
7	I think about how I can integrate my knowledge with other fields.					
8	I try to integrate newly acquired knowledge and information with existing knowledge.					
9	I synthesize various pieces of information according to the flow.					
10	I can find links between different activities.					
11	I relate myself to many other things that happen in my life.					
12	I fully understand what I have learned and apply it to other areas.					
13	I gather information related to a problem and lead it to a reasonable solution.					
14	I can predict the outcome of the problem-solving method I have chosen.					
15	I check my progress to see if I'm doing it in line with my problem-solving goals.					
16	I am good at making systematic plans to solve complex problems.					
17	I solve a certain problem and find the success factors.					
18	I check to see if the problem I was trying to solve in the first place has been fixed.					
19	I make a problem-solving plan considering the time and environment given to me.					
20	I find rational problem-solving methods that fit my abilities.					
21	I find content that helps or is needed in solving problems on my own.					
22	I can prioritize which of the methods is more important (suitable).					
23	I look for information in a variety of ways that I think might be helpful in					

	solving a problem.					
24	I can set the standard for which method to choose among several problem-solving methods.					
25	Even if I fail, I try to solve difficult tasks.					
26	I can use the information I know to perform tasks.					
27	I can overcome difficult situations.					
28	I keep trying even when there are difficulties.					
29	I can use my abilities to the fullest for a given task.					
30	I am proud of my abilities.					