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Thinking Outside the Box: Exploring Indonesian EFL Pre-Service Teachers' Conceptions and Perceptions of Creativity

Kasyfur Rahman[1*], Hery Rahmat[2]
[1,2]Universitas Islam Negeri Mataram
Correspondence Email: kasyfurrahman@uinmataram.ac.id

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Abstract:

The aim of this study is to explore how EFL pre-service teachers conceptualize and perceive creativity. A total of 226 pre-service teachers enrolled at a state university, Universitas Islam Negeri Mataram, participated in a survey, and six of them voluntarily took part in a follow-up focus group interview. Their conceptions of creativity were investigated using open-ended questions and interviews. In addition, their perceived creativity was assessed through a self-report scale adapted from the Creativity Styles Questionnaire–Revised (CSQ-R). The findings indicate that their conceptions are partially aligned with prevailing theories of creativity, encompassing creative outcomes, individual traits, and creative processes. Furthermore, the majority of participants identified themselves as medio-creative. Creative individuals reported greater use of techniques, heightened sensory awareness, control over environmental and behavioral factors, and stronger beliefs in unconscious processes. The study also discusses implications for pre-service teacher education.

Abstrak:

Tujuan dari penelitian ini adalah untuk mengeksplorasi bagaimana calon guru bahasa inggris memahami dan memandang kreativitas. Dua ratus dua puluh enam calon guru yang sedang menjalani studi di Universitas Islam negeri Mataram berpartisipasi dalam sebuah survei tentang kreativitas, dan enam di antaranya secara sukarela berpartisipasi dalam wawancara kelompok terfokus. Data tentang konsepsi kreativitas mereka dikumpulkan menggunakan pertanyaan open-ended dan wawancara. Data persepsi kreativitas diperoleh melalui respons calon guru terhadap skala yang diadaptasi dari *Creativity Styles Questionnaire-revised* (CSQ-R). Hasil penelitian menunjukkan bahwa konsepsi calon guru tentang kreativitas sejalan dengan sebagian besar teori kreativitas. Mereka memahami kreativitas sebagai hasil kerja kreatif, ciri-ciri pribadi, dan proses kreatif. Selain itu, sebagian besar responden mengidentifikasi diri sebagai medio-kreatif. Individu yang kreatif mengungkapkan penggunaan teknik, indera, dan kontrol lingkungan/perilaku yang lebih tinggi serta kepercayaan pada proses bawah sadar. Implikasi untuk pendidikan calon guru juga disajikan.

Keywords:
Creativity, Conception, Perception, English as a Foreign Language, Pre-Service Teachers

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Introduction

Creativity is widely regarded as a vital life skill that the education system must foster (Craft, 2006), given its potential to address complex social, political, and economic challenges (Burnard & White, 2008; Kampylis, Berki, & Saariluoma, 2009). Providing creative learning opportunities in conventional classrooms is essential, as creativity is recognized as a critical competency in education (Akyıldız & Çelik, 2020; Huh & Lee, 2020; Kupers, Lehmann-Wermser, McPherson, & Van Geert, 2019). It contributes to resolving issues in both academic and personal domains (Kettler, Lamb, Willerson, & Mullet, 2018) and plays a pivotal role in tackling global societal problems (de Vries & Lubart, 2019). Without creativity, societal progress would stagnate (Sternberg & Karami, 2022). Despite its importance, there is widespread agreement that the creative potential of students is not sufficiently recognized or nurtured within schools (Andiliou & Murphy, 2010). Classrooms frequently fail to cultivate creativity (Furman, 1998; Plucker, Makel, & Qian, 2010), often due to an overwhelming focus on mastering academic content.

Equipping future educators with a comprehensive understanding of creativity has become increasingly important. Teachers' beliefs about creativity significantly influence how they incorporate it into classroom practice (Bereczki & Kárpáti, 2018). Their definitions and perceptions of creativity also affect how it is developed and manifested in educational settings (Andiliou & Murphy, 2010). Moreover, teachers can promote creativity by serving as role models (Akyıldız & Çelik, 2020). However, pre-service teachers often hold limited or inadequate conceptions of creativity. A common limitation is their lack of understanding and experience in applying creativity within educational contexts (Ata-Akturk & Sevimli-Celik, 2023). They frequently define creativity in narrow terms, reflecting misconceptions (Howell, 2008; Newton & Newton, 2009) and a misalignment with current scholarly perspectives (Mullet, Willerson, Lamb, & Kettler, 2016; Olafsson, 2020). Their understandings are often simplistic and focused primarily on factual or procedural aspects (Newton & Newton, 2009). Additionally, many struggle to distinguish between the concept of creativity, its application in classroom settings, and examples of creative behavior (Newton & Beverton, 2012). These misconceptions are not unique to pre-service teachers. Similar trends have been observed among in-service teachers. Aljughaiman and Mowrer-Reynolds (2005) found that teachers often possess inaccurate conceptions of creativity and experience tensions when interacting with creative students. Likewise, many educators are unaware of fundamental principles of creativity and fail to implement creative strategies in their instruction (Akyıldız & Çelik, 2020). Gralewski and Karwowski (2019) reported that teachers differ in how they associate creativity with cognitive styles, with some perceiving creative individuals as self-disciplined and others viewing them as the opposite.

The roots of these limited conceptions are multifaceted. Thinking style has been strongly associated with creativity (Zhu & Zhang, 2011), and personality traits such as openness and agreeableness have also been identified as predictors (Kaufman & Beghetto, 2013; Puryear, Kettler, & Rinn, 2017). Despite these insights, research on pre-service teachers' perceptions and conceptions of creativity remains limited (Kurt & Onalan, 2018). Existing studies tend to focus on in-service teachers or student creativity, often neglecting the beliefs, understandings, and attitudes of pre-service teachers – individuals who are still forming their professional identities. In the Indonesian context, where cultural, institutional, and curricular dynamics uniquely shape educational practices, empirical research on how pre-service teachers define, value, and intend to implement creativity in their future classrooms is scarce. This lack of inquiry hinders the development of teacher education programs that can effectively cultivate creative teaching mindsets among future EFL educators. Addressing this gap is essential to align teacher preparation with global educational shifts toward 21st-century competencies.

Understanding pre-service teachers' conceptions and perceptions of creativity is essential, as they will play a central role in fostering creativity among their future students. Teachers' beliefs about creativity significantly influence their pedagogical practices (Kurt & Onalan, 2018) and shape how they approach the cultivation of creativity in classroom settings. Since the development of students' creative potential depends largely on their teachers (Levanon, 2021), educators who value creativity as integral to learners' holistic growth are more likely to implement instructional practices that promote it (Jesson, 2012). Investigating pre-service teachers' conceptions of creativity within the Indonesian context is particularly relevant, given that sociocultural and historical factors can influence how creativity is understood and judged. What constitutes creativity in one cultural or educational setting may differ considerably in another. For example, Chinese teachers tend to emphasize divergent thinking, whereas German teachers are less inclined to associate creativity with intelligence (Helfand, Kaufman, & Beghetto, 2016). In addition, conceptions of creativity often vary across academic disciplines (Georgiou, Turney, Matruglio, Jones, Gardiner, & Edwards-Groves, 2022). Then, a solid understanding of creativity is a prerequisite for effectively integrating it into teaching practice. However, creativity is often underemphasized in higher education, and many programs lack clearly defined creative objectives (Jackson & Shaw, 2006). In response to this gap, the present study aims to explore pre-service teachers' conceptions and perceptions of creativity through the lens of the 4 Ps model of creativity – person, process, product, and press – by addressing the following research questions:

(1) How do Indonesian EFL pre-service teachers define or conceptualize creativity?
(2) How do Indonesian EFL pre-service teachers perceive their own creative capacities?

Literature Review

Conceptions of Creativity

The term creativity is frequently employed in educational discourse; however, its definitions – whether offered by scholars in education and psychology or by practitioners – often remain ambiguous. Despite this lack of consensus, research suggests that several shared elements underpin most definitions. Fundamentally, both scholars and educators generally agree that creativity involves the capacity to produce work that is both original and appropriate within the constraints and criteria of a given task (Kaufman & Baer, 2004). Etymologically, the word creative originates from the verb to create, meaning to bring new ideas, concepts, or objects into existence. While creativity may carry different connotations for different individuals, it is commonly associated with the production of novel outcomes. Glăveanu (2013) emphasizes that creativity entails the behavior of individuals or groups engaged in ongoing interaction with diverse audiences and the affordances of the material world, ultimately resulting in the development of new and valuable artifacts. Thus, creativity should not be seen merely as an individual trait; rather, it is shaped by a range of factors, including personality, environment, culture, and social interaction.

Richard, Holder, and Cairney (2021) synthesized recent literature on creativity and categorized its components into two primary domains: the actor (or individual) and the environment. The creative contributions of the actor arise from cognitive skills, affective attributes, and physical expression, whereas environmental factors include the material world, micro-cultural values, and patterns of social interaction. Creativity has also been conceptualized in diverse ways. A widely accepted view among scholars is that creativity comprises two core elements: novelty and task appropriateness (Helfand, Kaufman, & Beghetto, 2016). However, judgments about what is considered creative are often shaped by sociocultural and historical contexts, resulting in variation across cultures. For example, Chinese educators tend to highly value divergent thinking, whereas German educators are less inclined to associate creativity with intelligence (Helfand, Kaufman, & Beghetto, 2016). In educational contexts, creativity can be classified based on experiences in teaching and learning, including constraint-focused, process-focused, product-focused, transformation focused, and fulfillment-focused experiences (Kleiman, 2008). Additionally, Sternberg and Karami (2022) propose a classification of creativity from a purpose-oriented perspective, distinguishing among positive, negative, and mixed creativity. Positive creativity contributes to societal betterment, while negative creativity may be harmful, driven by motives such as greed or revenge. Mixed creativity, by contrast, is characterized by outcomes that are neither clearly beneficial nor detrimental.

Frameworks for Creativity

Seminal works on creativity have proposed various models to explain the types of creativity and the factors that contribute to it. One widely recognized framework is the **4P model of creativity**, also known as the Four Ps of Creativity, which identifies four key components: *person, process, product,* and *press* (Rhodes, 1961). The **"Person"** component focuses on the individual characteristics and traits that influence creativity. It emphasizes

personal qualities such as skills, attitudes, knowledge, expertise, cognitive abilities, personality traits, motivation, and perseverance. Thinking styles and modifiability are also central to this component, acknowledging that individual differences significantly shape one's creative potential (Sternberg & Karami, 2022). Then, the **"Process"** component refers to the cognitive and psychological activities involved in the creative act. This includes stages such as problem identification, information gathering, idea generation, evaluation, and implementation. Both divergent thinking (the ability to generate multiple ideas) and convergent thinking (the ability to refine and select the best ideas) are essential processes that drive creativity.

Furthermore the **"Press"** component addresses the environmental factors that influence creativity. It recognizes that context can either support or inhibit creative expression. These environmental influences include social norms, cultural expectations, organizational climate, access to resources, support systems, and external constraints. Positive press fosters creativity by providing a supportive atmosphere, whereas negative press imposes restrictions that can stifle innovation. Next, the **"Product"** component pertains to the tangible or intangible outcomes of the creative process. These may include artistic works, scientific discoveries, technological innovations, entrepreneurial ventures, or social interventions. This component underscores the importance of evaluating creative outputs based on their originality, value, and relevance. Together, the 4P model presents creativity as a multifaceted phenomenon shaped by the interaction between the individual, cognitive processes, environmental conditions, and resulting products. A comprehensive understanding and support of each component can enhance creativity at the individual, organizational, and societal levels.

Another influential framework is the **Four Cs model of creativity** (Beghetto & Kaufman, 2007), which categorizes creativity into *mini-c, little-c, pro-c,* and *Big-C* forms. Firstly, **Big-C creativity** refers to eminent, historically significant creativity demonstrated by highly impactful figures such as renowned scientists, artists, and leaders. Secondly, **Little-c creativity** involves everyday creative activities, such as cooking, home decorating, or creating crafts. While it may not gain public recognition, it contributes meaningfully to daily problem-solving and personal satisfaction.

However, the dichotomy between Big-C and little-c creativity has been critiqued. Runco (2014) argues that fame and recognition, while often associated with creativity, are not definitive markers. Fame also depends on factors such as persistence, self-confidence, and external validation. Not all famous individuals are inherently creative, and many creative individuals remain unrecognized. Moreover, the cognitive processes underlying everyday creativity and eminent creativity are often similar; the difference lies in the level of impact and social acknowledgment. Little-c creativity may even develop into Big-C over time. **Mini-c creativity** refers to the personal, internal process of generating novel and meaningful ideas as part of learning and self-expression. It plays a foundational role in constructing individual knowledge and insights. Meanwhile, **Pro-c creativity** describes professional-level creativity exhibited by individuals who have acquired expertise in a specific domain—such as teachers, scientists, or athletes—but have not necessarily

achieved widespread acclaim. Pro-c creativity involves both innovative thinking and the application of domain-specific knowledge and skills. The Four Cs model highlights the continuum of creativity, from personal meaning-making to professional excellence and historical impact. It underscores the importance of nurturing creativity at all levels and in all domains, recognizing its potential to transform individuals and communities.

Glăveanu (2013) proposed an alternative conceptualization of the creative process through the **5A model**, which outlines five interconnected stages: *Attention, Attraction, Attitude, Action,* and *Accomplishment*. **Attention** refers to the initial stage in which individuals become aware of a particular problem or challenge, recognizing the need for creative thinking. This stage is often triggered by a stimulus that elicits curiosity or interest. In the **Attraction** stage, individuals form an emotional connection to the identified issue, finding personal relevance in addressing it. This phase marks a transition from general awareness to meaningful engagement. The **Attitude** stage involves the mindset or disposition individuals bring to the creative process. It emphasizes traits such as openness, curiosity, risk-taking, and flexibility. A constructive and resilient attitude is critical for navigating obstacles and fostering experimentation. Then, **Action** entails the practical engagement in creative endeavors, including the generation, development, and refinement of ideas. It encompasses activities such as brainstorming, prototyping, and problem-solving. Finally, the **Accomplishment**stage centers on evaluating the outcomes of the creative process. This includes assessing the originality, quality, and impact of the final product, as well as reflecting on the personal satisfaction derived from creative work. Glăveanu's 5A model offers a holistic perspective on creativity, emphasizing the interplay of cognitive focus, emotional investment, mindset, active engagement, and reflective evaluation.

More recently, Sternberg and Karami (2022) proposed an expanded theoretical framework known as the **8P model**, which builds upon Rhodes' original 4Ps—*Person, Process, Product,* and *Press*—by introducing four additional components: *Purpose, Problems, Propulsion,* and *Public*. They argue that existing models insufficiently capture the complexity of creativity and that a more comprehensive framework is necessary. **Purpose** pertains to the underlying aim or intent of a creative act, which is typically defined by the dual criteria of novelty and usefulness. **Problems** represent the challenges or tasks that necessitate creative responses. Sternberg and Karami categorize problems into four types. *Type I problems*, which have both a known solution path and outcome (e.g., the "missionaries and cannibals" problem), are not considered to require creativity. The other types involve varying degrees of ambiguity and complexity, often requiring creative input. **Propulsion** describes the extent to which a creative idea or product advances a field or domain. This concept underscores the transformative potential of creativity to challenge norms or introduce novel paradigms. **Public** refers to the evaluative role played by audiences or society in determining whether a creative product is perceived as original and valuable. Public reception provides essential feedback and validation, shaping how creativity is recognized and rewarded. Together, the 8P model broadens the analytical lens on creativity by integrating motivational, situational, evaluative, and developmental

aspects. It underscores the multifaceted nature of creativity as a phenomenon influenced not only by individuals and contexts but also by purpose-driven action, the nature of problems, innovation's impact, and social recognition.

Pre-Service Teachers' Perceptions of Creativity

Teachers' perceptions are a critical component of instructional practice, particularly in relation to creativity. Their views significantly influence how creative processes are understood and implemented in the classroom (Kasirer & Shnitzer-Meirovich, 2021). Research suggests that teachers strive to nurture students' creative potential when they are able to recognize it, even though their definitions of creativity often vary. Many teachers report that creativity received little emphasis during their training and that their understanding of innovation is often shaped by prevailing stereotypes (Davies, Fasciato, Rogers, & Howe, 2004). While most educators generally support the idea of fostering creativity, some studies (Beghetto, 2007) indicate that teachers may harbor unfavorable attitudes and demonstrate limited tolerance for behaviors commonly associated with creativity.

Pre-service teachers' perceptions of creativity differ widely depending on their educational backgrounds and fields of study. These perceptions are influenced by their conceptual understanding of creativity, its defining characteristics, and the surrounding environmental factors. While many view creativity as a universal potential that can be nurtured in educational contexts, their definitions frequently diverge from those of experts. Factors such as family background, prior educational experiences, and subject specialization play significant roles in shaping these views (Kurt & Önalan, 2018). For instance, pre-service science teachers have noted that certain curriculum areas either support or constrain creative expression. Although many identify as somewhat creative, they often feel unprepared to integrate creativity into their teaching (Kurt & Önalan, 2018; Levanon, 2021). Some studies emphasize their recognition of the need for professional development to enhance their creative teaching capacities. Therefore, pre-service teachers' incomplete or narrow beliefs about creativity highlight the necessity for targeted teacher education initiatives that align their perceptions with broader, research-informed understandings of creativity.

Research Method

This study employed a convergent mixed-methods design to compare and contrast quantitative and qualitative data strands. The convergent design involved the separate collection and analysis of quantitative and qualitative data, followed by the integration of results. The analyses of these two distinct data types were compared to determine whether they corroborated or contradicted each other. This design was selected due to its capacity to provide multiple perspectives on the research problem (Creswell & Clark, 2018). By integrating both quantitative and qualitative methods, the study aimed to achieve a more comprehensive understanding of the research topic, leveraging the strengths of one approach to compensate for the limitations of the other (Creswell, 2015).

The participants consisted of 226 EFL pre-service teachers enrolled in the English Language Education program at Universitas Islam Negeri Mataram in Nusa Tenggara Province, Central Indonesia. The sample included 164 female and 62 male pre-service teachers across four academic years (first to fourth year). Additionally, six pre-service teachers participated in a follow-up focus group interview after completing a creativity questionnaire. The study utilized convenience sampling, with participants volunteering based on their willingness and availability.

The study employed two primary data collection methods: a survey and focus group interviews. To examine participants' conceptions of creativity, all respondents were asked to complete an open-ended question: "What does it mean to be creative?" This allowed participants to freely express their personal understanding of the concept. Additionally, a 71-item questionnaire adapted from Kumar, Kemmler, and Holman (1997) Creativity Styles Questionnaire-Revised (CSQ-R) was administered to assess self-perceived creativity levels. The questionnaire included two items from the Global Measure of Creative Capacity (GMCC): "I consider myself to be a creative person" and "I engage in creative work on a regular basis." It also contained 76 items across seven subscales: Beliefs in Unconscious Process (17 items), Use of Techniques (18 items), Use of Other People (9 items), Final Product Orientation (7 items), Superstition (2 items), Environmental/Behavioral Control (18 items), and Use of Senses (5 items). However, five items from the Environmental/Behavioral Control subscale were removed due to cultural and religious considerations, specifically items related to smoking (52, 60, 62) and alcohol use (67, 68). Two additional items from the Use of Senses subscale (75-taste, 76-smell) were excluded based on previous research indicating their limited relevance in creative processes (Kumar, Kemmler, & Holman, 1997).

To complement the quantitative data, a 30-minute focus group discussion was conducted with volunteer participants. This qualitative component explored three key areas: (1) personal definitions of creativity, (2) self-perceptions as creative individuals, and (3) recollection of past experiences requiring creative thinking. To ensure optimal data quality and participant comfort, the session was conducted face-to-face in the participants' native language (Indonesian). All focus group discussions were audio-recorded for subsequent analysis. The recordings underwent a rigorous processing protocol including verbatim transcription, translation into English, and thematic analysis. This multi-step approach ensured accurate interpretation of the qualitative data while maintaining the authenticity of participants' responses.

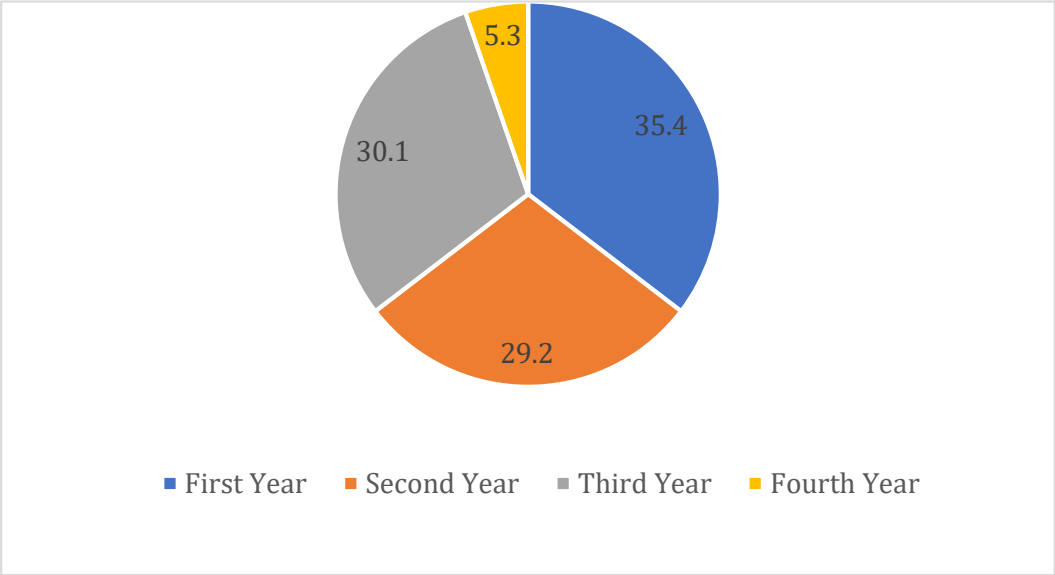


Figure 1: Distributions of Participants' Study Year in Percentage

The survey data were analyzed using descriptive statistics to identify patterns in the responses. Open-ended question responses were categorized based on keywords. The interview data were first transcribed and then analyzed through content analysis. This process involved: (1) re-reading the transcripts, (2) condensing the texts into smaller meaning units, (3) formulating codes based on these units, and (4) grouping them into thematic categories (Erlingsson & Brysiewicz, 2017). Finally, the data were examined for alignment with the Four Ps model of creativity (Person, Process, Product, and Press).

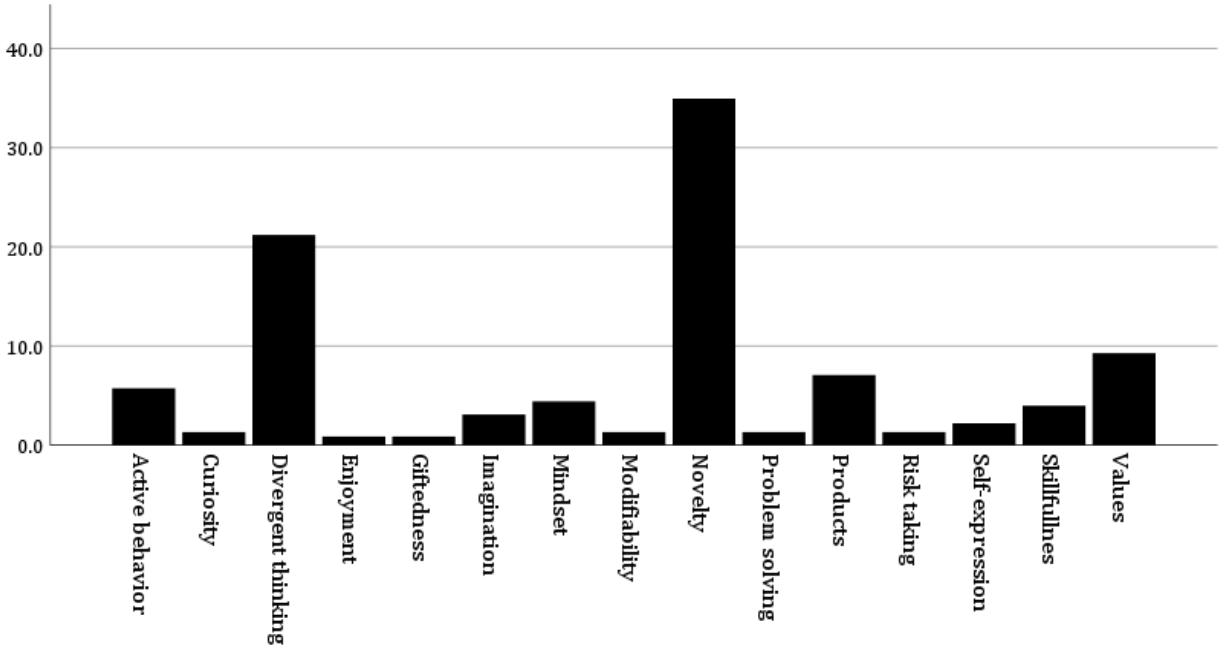
Results and Discussion

Pre-service Teachers' Conceptions of Creativity

As shown in Figure 2, participants' responses regarding their beliefs about creativity varied significantly. These results were derived from their answers to the open-ended question: "What does it mean to be creative?" The responses were systematically coded and grouped according to conceptual similarities and recurring keywords. The coding process revealed distinct patterns in participants' conceptions. Responses containing keywords such as "new," "innovation," "discovery," and "original" were categorized under novelty. Similarly, terms like "different" and "unique" were grouped into the divergence category. Through this analytical approach, five primary conceptions of creativity emerged: novelty, idea generation, divergent thinking, value creation, and product development. Less prevalent conceptions included creativity as problem-solving, modifiability, innate talent, and enjoyment. It should be noted that nine of the 226 participants (4%) chose not to provide any response to this open-ended question.

The distribution of these conceptions showed clear patterns. Novelty emerged as the most dominant conception, with 101 participants (44.7%) associating creativity with terms like "new," "innovation," and "unique." Divergent thinking was the second most common conception, identified by 48 respondents (21.2%), who emphasized the

generation and development of multiple ideas. Value creation was cited by 21 participants (9.3%), who used descriptors such as "valuable," "useful," and "important." Additional, less frequent conceptions included product-oriented responses ("make," "create," "build"), descriptions of active behaviors ("active," "do many things"), and references to specific mindset characteristics ("systematic," "open," "broad"). Some participants also mentioned more nuanced aspects of creativity, including curiosity and risk-taking, though these appeared less consistently in the data.



The focus group interview data revealed conceptions of creativity that largely aligned with those identified in the survey responses. A majority of interviewed participants characterized creativity primarily as the ability to create or invent things through diverse approaches (PST1, PST4, PST5). However, participant PST2 offered a more nuanced understanding, describing creativity as encompassing multiple perspectives. The remaining interviewees tended to associate creativity with particular mental states or personal characteristics. These differing conceptions are illustrated in the following representative interview excerpts:

> PST1: *"I think, a creative person can create something which is out of the box, meaning ideas offered are not conventional and commonly heard".*
>
> PST2: *"In my opinion, creativity essentially refers to possessing a different mindset. It also means problem solving. When one is coming across a problem, he gets stuck and gives up, the problem is not solved, but when one possesses a different mindset, he will come up with new solution".*

PST3: *"I think creativity means to have a high level of imagination".*

PST4: *"Basically, creativity is a way to create an alternative which is not necessarily in line with the existing and to express ourselves".*

PST5: *"A creative individual must have a unique trait compared to his peers. When being creative, he has enough skills to create new things".*

PST6: *"A creative person possesses a high level of curiosity".*

When participants were asked whether creativity is innate or can be developed through training, approximately half agreed that it can be learned and fostered, particularly through instruction. For example, PST5 connected this discussion to a personal experience involving a friend who appeared to have inherited creativity from his father. While noting this apparent case of innate creativity, PST5 ultimately acknowledged that creative ability can indeed be cultivated through learning. A similar perspective emerged from PST3, who recognized that creativity can be trained while suggesting that individuals may achieve better results when they have inherited creative tendencies from their parents. This view presents creativity as a skill that can be developed, though potentially enhanced by innate predispositions. In contrast, PST6 and PST2 argued that creativity is primarily shaped by environmental factors and habitual practices rather than innate qualities. Their perspective emphasizes the role of external influences and consistent engagement in creative activities as key determinants of creative development.

PST5: *"In my opinion, creativity is inherent because I have a friend of mine. Her father is creative, and his creativity is passed down to his children, but I think it can be learned".*

PST6: "*I think creativity can be trained. In our brain system, we can do things when they become our habits. If we do not train our brain to create new things, it will not be used to it. If we train our brain to think about new ideas, critical thinking, necessary ideas, possible solutions to a problem, I think creativity is not inherent, but can be trained".*

PST3: *"To me both work. Creativity is both innate and trainable. So, if we maximize our effort to learn new things it would be much better if at the same time, we have genetic creativity from our father and mother. It is better to have both"*.

PST2: *"Perhaps it depends more on the environment. Maybe his parents are creative. My friend's parents are creative, but their children are not. When the parents are creative and expose their children to creative works, their children I think will follow"*.

Pre-service teachers' conceptions of creativity vary based on their responses to the open-ended question. Most participants align with common definitions emphasizing novelty and the creation of new ideas or products (Kaufman & Glăveanu, 2019). Their responses characterize creativity through three dimensions: purpose and outcomes

(novelty and value), individual attributes (skills, imagination, mindset, and giftedness), and process (idea generation, divergent thinking, and problem-solving). Few respondents mentioned other components. These views are supported by interview data, which reveal a strong emphasis on "person" traits within both 4P and 8P models of creativity. Participants frequently reference qualities like mindset, cognitive skills, experience, expertise, and attitudes. The results suggest participants' conceptions primarily reflect mini-c creativity (Beghetto & Kaufman, 2007), indicating a limited understanding that hasn't yet incorporated broader perspectives. These findings confirm previous research documenting deficiencies in pre-service teachers' conceptions of creativity (Ata-Akturk & Sevimli-Celik, 2023; Howell, 2008; Newton & Newton, 2009). The lack of consensus regarding creativity definitions in higher education (Egan, Maguire, Christophers, & Rooney, 2017; Georgiou, Turney, Matruglio, Jones, Gardiner, & Edwards-Groves, 2022), combined with individual differences in thinking styles and personality, contributes to this constrained understanding. Establishing clear benchmarks for creativity concepts in teacher education programs may help address this issue.

While survey results show few participants view creativity as purely innate, focus group interviews reveal all participants believe creativity involves both inherited and learnable components. These findings align with second-generation creativity theories emphasizing its teachable nature (Akyıldız & Çelik, 2020; McWilliam, 2009). Some acknowledge giftedness in creativity, suggesting a nature-nurture interaction. Although some individuals demonstrate greater natural creative aptitude, participants agree creativity can be developed through practice and experience. These beliefs have important pedagogical consequences. Persistent beliefs in creativity's inherent nature may undermine teachers' confidence in fostering student creativity. Research shows educators who view creativity as innate are less likely to recognize creative potential in all students (Paek & Sumners, 2019). While some respondents emphasize teaching creatively, many neglect teaching for creativity (Brinkman, 2010). In summary, EFL pre-service teachers predominantly emphasize "person" elements in their creativity conceptions, reflecting narrow views needing attention in teacher education. However, their belief that creativity can be taught suggests confidence in teaching both with and for creativity.

Pre-service Teachers' Self-Perceived Creativity

To investigate pre-service teachers' self-perceived creativity and their approaches to developing creative skills, we first assessed the reliability of the adapted Creativity Styles Questionnaire-Revised (CSQ-R) scale (Kumar & Holi, 1997). The reliability analysis yielded varied results across the eight subscales, with three demonstrating unacceptably low Cronbach's alpha values: Use of Other People ($\alpha = .48$), Final Product Orientation ($\alpha = .27$), and Superstition ($\alpha = .49$). Following Borg and Gall's (1996) established guideline that reliable self-report personality scales typically fall within the .60 to .80 range, we excluded these three subscales from further analysis due to their insufficient reliability. The analysis revealed two subscales with particularly strong reliability scores: Use of Techniques ($\alpha = .91$) and Environmental Control/Behavioral Self-Regulation ($\alpha = .85$). These robust reliability coefficients suggest these particular dimensions of creative style are being

measured with high consistency in our sample. The remaining subscales showed acceptable reliability levels falling within the expected range for personality measures. These reliability findings are presented in detail in Table 2, which displays the Cronbach's alpha coefficients along with the means and standard deviations for each CSQ-R subscale. The exclusion of the low-reliability subscales allows us to proceed with greater confidence in our analysis of the remaining dimensions of creative style among pre-service teachers.

Table 1: Cronbach α, Means and Standard Deviations of CSQ-R

Subscales	α	M	SD
Global Measurement of Creative Capacity	.68	3.3	.80
Belief in Unconscious Process	.68	3.3	.41
Use of Techniques	.91	3.5	.62
Use of Other People	.48	2.9	.45
Final Product Orientation	.27	2.7	.64
Environmental Control/Behavioural self-regulation	.85	3.4	.62
Superstition	.49	3.0	.96
Use of Senses	.69	3.3	.77

The analysis of respondents' scores on the Global Measure of Creative Capacity (GMCC) revealed three distinct categories of self-perceived creativity. Participants were classified into high, medium, and low creativity groups based on their assessment scores.

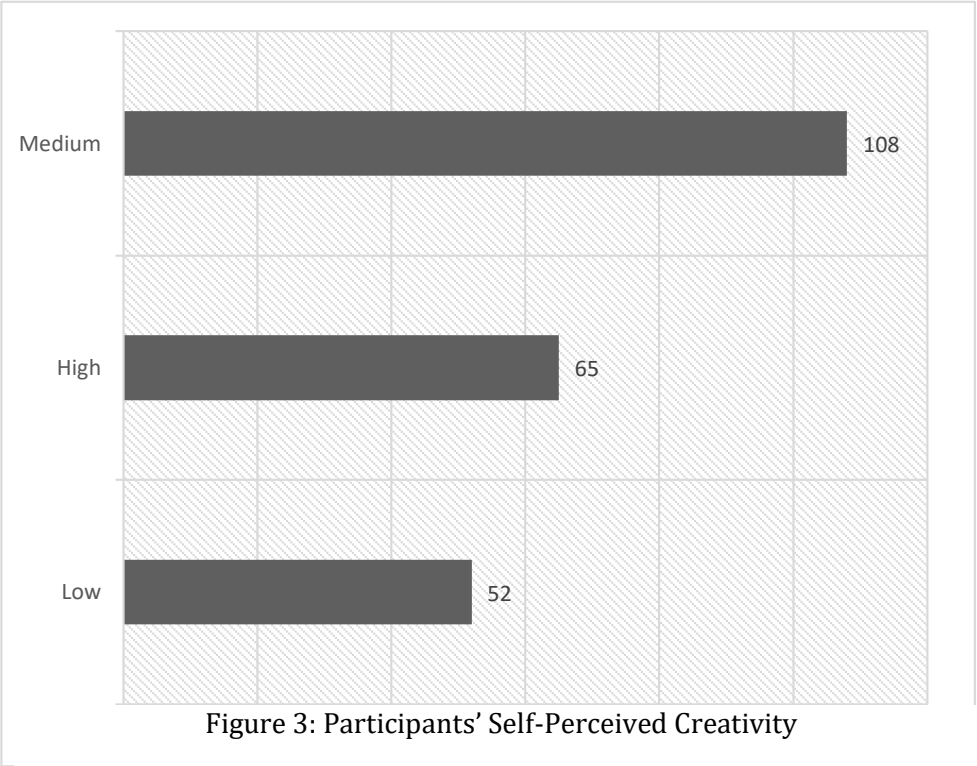


Figure 3: Participants' Self-Perceived Creativity

The distribution showed that 29% of participants (N=65) scored between 8-10, placing them in the high creativity category. Nearly half of the respondents (48%, N=108) fell into the medium range with scores of 6-7. The remaining 23% (N=52) scored below 6, indicating low self-perceived creativity.

These findings suggest that the majority of pre-service teachers view themselves as having medium creative capacity. However, it is important to consider that these self-assessments may be influenced by variations in how participants conceptualize and understand creativity, as discussed in previous sections. The subjective nature of self-perception measures means that individuals' ratings may reflect their personal definitions of creativity as much as their actual creative abilities. This distribution pattern raises important questions about how teacher education programs might address these perceived creative capacities and potentially expand students' understanding of what constitutes creativity in educational contexts..

In the analysis, we focused on the high- and low-creativity pre-service teachers to uncover the tendencies of each group. Pre-service teachers with a medium level of creativity, who accounted for most of the responses, were excluded. A multivariate analysis conducted to test the differences between high- and low-creativity pre-service teachers indicated an overall significant result, with $F = 5.15$ and $p = .000$. Most of these participants appeared to lack confidence in their creativity, as illustrated in the following interview:

> PST2: *"Maybe if given options among creative, neutral, and not creative, I might be in the middle. Sometimes I am creative when I must be, so I'm not enormously creative, but at least I have any bit of creativity".*
>
> PST3: *"To me, I'm not strongly creative, but sometimes if doing my assignment, like…. Ideas will come up and it is inevitable to become creative. If I am not creative, my assignment will not be done*".
>
> PST1: *"You can call me creative because whenever I do my assignment, I don't want to imitate others', for example I wrote things as creatively as possible, making them different from others".*
>
> PST5: *"If you ask me, I'm not extremely creative, but I become creative when forced to be so. I must be pushed to be as creative as possible; I must be assigned a task first*".
>
> PST 6: *"I think I am like my peers. I think of myself as a creative person when I oversee a role in an organisation. Even though I haven't learned and understood the role"*.

When asked about the projects or tasks they had experienced that required creative thinking skills, the responses varied from one pre-service teacher to another. Most of their answers indicated the use of creative thinking skills to complete academic tasks such as instructional design or writing research proposals.

PST4: *"For example, when I was asked to compose a research proposal, I was insisted on discovering new topic where there are linguistic and cultural aspects. We must think hard to come up with new ideas that are different from the previous ones"*.

PST2: "*If you ask me, I find myself to be creative when I am involved in martial arts community. For example, if we get stuck with only a single kick, we'll fall. Otherwise, when we use our ideas or techniques, new kicks will appear. We'll fall if we don't use our creativity*".

PST3: *"Because we are majoring in education, some courses teach about teaching, for example, microteaching. Our instructor assigns us to be as creative as possible during teaching simulation, not simply relying on lesson plans created beforehand, but making the classroom atmosphere fun. This test our creativity as students of education".*

PST1: *"As we are pre-service teachers, it is impossible to use ordinary teaching media or materials. We can express our creativity through microteaching courses, for example through designing a lesson; what is a good way to deliver a lesson? Today, many apps can help us create creative lessons for our future students"*.

To explore this further and assess the differences between the two groups on each item, a univariate analysis was conducted at $\alpha = .05$ for each subscale and its corresponding items. As shown below, all four subscales demonstrate significant differences ($p = .000$) between pre-service teachers with high and low levels of creativity.

Table 2. Means, SD, F-values, and p-values on the CSQ-R Subscales for Low and High Creativity Pre-service Teachers

Subscale	Low		High		F	p
	M	SD	M	SD		
Beliefs in Unconscious Process (BUP)	3.09	.35	3.51	.42	32.291	.000
Use of Techniques (UT)	3.10	.56	3.93	.59	60.882	.000
Environmental Control/Behaviour Self-regulation (ECB)	3.19	.58	3.70	.66	19.478	.000
Use of Senses (US)	2.99	.66	3.78	.82	32.514	.000

To identify which items differentiate pre-service teachers with high and low creativity within each subscale, a univariate analysis was conducted for each item. Among all the subscales, the Belief of Unconscious Process (BUP) subscale exhibits the largest number of items with significant differences—15 items in total. However, two items did not significantly differentiate between the two groups: BUP6 ($p = .127$), "In my work, there are often long gaps during which I have no motivation," and BUP12 ($p = .080$), "I believe that creativity comes from hard work and persistence."

Overall, highly creative pre-service teachers are more likely to agree that they: a) have creative ideas unconsciously; b) wait for inspiration before starting to work; c) engage in non-systematic creativity; d) experience unexplainable sources of insight; e) are

facilitated by unconscious processes in their creative work; f) can use creative ideas that come from their dreams; g) are creative when emotionally moved; h) become absorbed by new ideas; i) feel possessed by a new idea; j) attribute their creativity to divine inspiration, and k) lose their sense of time when engaging in creative work.

In the Use of Techniques (UT) subscale, nearly all items successfully distinguished highly creative from less creative pre-service teachers. The only exception was UT9 ($p = .098$), "I reject or ignore conventional ideas to come up with new ideas," which did not show a significant difference between the two groups. Therefore, highly creative pre-service teachers tend to: a) keep a tool to record ideas as they occur; b) let their minds wander to generate ideas; c) create new ideas by modifying existing ones; d) combine existing ideas to form new ones; e) critically evaluate products to improve them; f) revisit previously rejected ideas; g) fantasize about doing things differently; h) make step-by-step modifications to ideas; i) search for ideas outside their field; j) work on multiple ideas at once; k) use brainstorming techniques; l) experiment to develop ideas; m) take breaks when stuck before returning to the task; n) take walks to generate ideas, and o) read to inspire new ideas.

In the next subscale, Environmental Control/Behavioral Self-Regulation, the largest number of items—compared to the other subscales—failed to significantly differentiate between highly and less creative pre-service teachers. These items include ECB5 (I tend to drink caffeinated drinks before doing creative work, $p = .169$), ECB6 (I tend to drink a lot of drinks with caffeine during participation in creative work, $p = .184$), ECB10 (I tend to have background music when doing creative tasks, $p = .076$), ECB12 (I tend to meditate before doing creative tasks, $p = .729$), and ECB13 (I tend to have snacks when engaged in creative work, $p = .087$). Despite this, creative pre-service teachers reported that they: a) set a particular place and time for creative work; b) have specific settings to engage in creative activities; c) drink tea or coffee; d) reward themselves after engaging with creative ideas; e) prefer doing creative work in a quiet place, and f) begin creative tasks with a prayer.

The Use of Senses subscale, on the other hand, indicates that all three items successfully discriminate between high- and low-creativity pre-service teachers. In other words, highly creative individuals reported greater use of visual, auditory, and sensory input in developing their creative capacity. The main findings regarding self-perceived creative capacity suggest that most pre-service teachers in this study identified themselves as neither highly nor minimally creative. Although creativity is regarded as a crucial 21st-century skill, many individuals remain hesitant to label themselves as "creative" (Henriksen, Henderson, Creely, Ceretkova, Černochová, Sendova, Sointu, & Tienken, 2018). This reluctance may stem from the inherently open-ended and ambiguous nature of creative work. To address this challenge, structuring tasks to scaffold creativity is essential. One effective method for achieving this is through guided approaches such as design thinking. Moreover, school climate – mediated by motivation and proactive personality – has a significant impact on students' trait creativity (Gao, Chen, Zhou, & Jiang, 2020). In line with this, highly creative EFL pre-service teachers in the present study

reported greater use of creative techniques, environmental and behavioral control strategies, and sensory engagement. They also expressed stronger beliefs in the role of unconscious processes in creativity. These results are generally consistent with previous studies, although the differences observed in this study are more distinct.

However, this study also revealed a subscale with particularly low reliability: Use of Other People. While earlier research had identified Final Product Orientation and Superstition as unreliable (Keller, Lavish, & Brown, 2007; Kumar, Kemmler, & Holman, 1997), our findings suggest that the Use of Other People subscale is also problematic. A possible explanation may lie in the clarity of the item wording. In the Indonesian context, students are commonly encouraged to collaborate. Yet, when it comes to creativity, they may still associate it narrowly with individual skills and achievements. Finally, unlike previous studies (Keller, Lavish, & Brown, 2007; Kumar, Kemmler, & Holman, 1997; Pollick & Kumar, 1997), the current findings reveal a higher number of discriminating items across four subscales, indicating a stronger differentiation between high and low creativity levels among pre-service teachers.

Drawing on these results, it can be inferred that creativity can potentially be cultivated by facilitating the aforementioned dimensions. To promote creativity among pre-service teachers, teacher training programs may consider designing courses or instructional activities that incorporate the use of diverse techniques and foster self-regulation skills. Additionally, it is worthwhile to include lessons that support beliefs in unconscious processes and encourage the use of visual, auditory, and kinaesthetic senses. For instance, teacher educators might encourage pre-service teachers to begin classes with prayer or train them to optimize their sensory engagement during creative tasks. According to Voznyuk (2025), spirituality fosters the integration of cognitive and emotional processes, which is essential for creativity. In a similar vein, Nizhnikov (2017) argues that the processes of self-cognition and self-creation emphasized in spiritual practices align with the highest forms of creativity, enabling individuals to explore and express their inner selves. This integration of logical reasoning and emotional depth ultimately enhances creative performance. Alternatively, training might also aim to reduce students' concern with final outcomes, as the subscale related to final product orientation was found to have the lowest reliability in this study. Encouraging a focus on the creative process rather than solely on the end product may further support the development of authentic and sustainable creative capacities.

Conclusion

As creativity has become a vital skill in the current era, it is imperative for English language pre-service teachers to develop and conceptualize it in a more holistic manner. In general, pre-service teachers' conceptions of creativity are somewhat narrow but still partially aligned with expert definitions. A key issue that warrants further investigation is the underlying beliefs contributing to their hesitation in identifying themselves as creative, as most participants rated themselves within the average or mediocre creativity category. However, this study should be viewed in light of certain methodological limitations,

including the sample size and the limited range of perspectives. Therefore, the distinction between highly and less creative pre-service teachers should be interpreted with caution and not generalized across broader populations. It is important to note that the categorization of high versus low creativity in this study was based on participants' self-perceived creative capacity. Future research could benefit from employing a more comprehensive creativity assessment rather than relying solely on self-reported measures. In addition, future studies may consider involving teacher educators who work directly with pre-service teachers, as well as other university stakeholders responsible for creating enriched environments that support the development of creativity among pre-service teachers.

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Ethical Statement

The research was conducted in full compliance with ethical guidelines to safeguard participants' rights, well-being, and safety. Prior to the commencement of the study, all required ethical approvals and permissions were secured. The entire research process adhered to both institutional and international ethical standards, ensuring integrity, accountability, and transparency.

CRediT Author Statement

- **Author 1:** Conceptualization, Methodology, Investigation, Writing – Original draft preparation.
- **Author 2:** Writing – Reviewing and Editing, Formal analysis.

Conflict of Interest

The authors declare that there are no competing financial interests or personal relationships that could have influenced the work reported in this article.

Data Availability

The datasets generated and analyzed during the current study are available upon reasonable request.

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