

THE EFFECT OF CLUSTERING TECHNIQUE ON STUDENTS' WRITING ABILITY: A QUASI EXPERIMENTAL DESIGN AT SMA N 2 SLAWI

Maulidya Yumna Afifah^{1*}, Taufiqulloh², Yuvita³

¹²³Universitas Pancasakti Tegal (INDONESIA)

*Corresponding author: maulidyayumnaafifah@gmail.com

Abstract

This study aimed to investigate the effect of using the clustering technique on students' writing ability in recount texts, focusing on five components: content, organization, grammar, vocabulary, and mechanics. A quantitative quasi-experimental design was employed with two intact tenth-grade classes at SMA Negeri 2 Slawi in the academic year 2024/2025. Class X-2 served as the experimental group taught using clustering, while Class X-1 acted as the control group taught using conventional methods. Data were collected through pre-test and post-test writing tasks and analysed using descriptive statistics, normality and homogeneity tests, paired sample t-tests, and independent sample t-tests via SPSS 26. The findings revealed significant improvement in the experimental group's mean score (59.94 to 79.74) compared to the control group (50.57 to 66.43). The paired sample t-test for the experimental group yielded $p = 0.000 < 0.05$, indicating a significant improvement after treatment. The independent t-test confirmed a significant difference between post-test scores ($p = 0.000 < 0.05$), demonstrating the clustering technique's effectiveness in improving recount text writing. This study concludes that clustering is an effective prewriting strategy to enhance EFL students' writing ability.

Keywords: Clustering Technique, Writing Ability, Recount Text, EFL Students

1 INTRODUCTION

Writing is one of the core components of language learning and holds a crucial place in English as a Foreign Language (EFL) education. Among the four fundamental language skills, writing, listening, reading, and speaking. Writing is considered not only a means of communication but also a process that fosters critical thinking, creativity, and self-expression (H. Douglas Brown, 2004). For EFL learners, writing plays a significant role in academic contexts, where students are frequently required to produce various types of written texts such as essays, reports, and assignments (Hyland, 2019). Moreover, writing helps students internalize grammatical structures, expand vocabulary, and practice the use of language in a structured and meaningful way (Harmer, 2001)

Despite its importance, one of the hardest skills for EFL students to master is writing ((Bai et al., 2024). Learners often encounter difficulties in generating relevant ideas, organizing their thoughts coherently, employing accurate grammatical structures, and selecting appropriate vocabulary (Nurdianingsih et al., 2024). Moreover, many students experience writing-related anxiety and a lack of motivation, particularly when their confidence in English proficiency is low (Sun & Zhang, 2023). These obstacles are further exacerbated in instructional settings where students' exposure to English is largely confined to the classroom (Pun et al., 2024)). These difficulties are compounded by the limited opportunities many EFL learners have to engage with English beyond the classroom setting (Renandya & Jacobs, 2016). As a result, their opportunities to practice writing are often restricted to academic settings. The combination of cognitive, linguistic, and psychological barriers makes writing a particularly complex skill for students to develop (Deane et al., 2008). Consequently, EFL educators must seek effective instructional approaches that can support learners in overcoming these difficulties and improving their writing competence.

To overcome these challenges, educators should apply effective prewriting techniques that assist students in organizing their thoughts prior to writing. One such method is the clustering technique a visual strategy that encourages brainstorming by linking related ideas around a central theme (Wöhler & Reinhardt, 2021). This approach allows students to freely generate ideas, establish logical relationships between them, and lower writing anxiety by providing a clear and structured entry point. Often referred to as semantic mapping, clustering is anchored in cognitive learning theory, which posits that visual organization of information enhances both recall and comprehension (Shahzad et al., 2023). This technique helps activate prior knowledge and integrate new concepts more effectively. In this context, clustering functions as an essential prewriting tool that facilitates idea generation and

alleviates writer's block. Research by (Sihara et al., 2024) shows that visual prewriting strategies like clustering can significantly reduce writing anxiety and increase student motivation, especially in writing tasks that involve narrative or sequential structures. By combining structural guidance with expressive freedom, clustering fosters a supportive entry point into writing that encourages both engagement and confidence. During my teaching practicum at tenth grade SMA N 2 Slawi, these writing-related challenges were clearly observed among the students. According to (Husna & Multazim, 2019) many students showed low engagement in writing activities and struggled to generate and organize ideas when writing recount texts.

These findings are encouraging, most of the studies including those by (Sari et al., 2021), (Restika, 2022) and (Lestari et al., 2022) used qualitative or classroom action research methods, limiting the generalization of their findings. Therefore, there is a need for a quasi-experimental study that comprehensively investigates the impact of clustering on five components of writing content, vocabulary, grammar, organization, and mechanics specifically in the context of recount text writing. To respond to these gaps, this research offers a comprehensive, quasi-experimental analysis of how the clustering technique affects the students' writing recount text. Unlike previous studies, this research focuses on all five components of writing assessment: content, vocabulary, grammar, organization, and mechanics. It also applies a quasi-experimental design to provide measurable, generalizable findings. By doing so, this research provides a more thorough comprehension of the ways in which clustering influences EFL students' writing ability and contributes a valuable pedagogical strategy for improving writing instruction in Indonesian secondary schools.

Clustering Technique

Clustering is a prewriting technique that assists learners in generating and organizing ideas through visual mapping. As described by (Rico, 2000), the process begins by placing a central word or concept at the center of a blank page, from which related words or ideas are rapidly produced and visually connected using lines or arrows. This method reflects the associative functioning of the human brain, simultaneously engaging the left hemisphere's logical capabilities and the right hemisphere's creative processing. As such, clustering functions as an effective cognitive strategy in the preparatory stages of English as a Foreign Language (EFL) instruction, clustering is particularly useful in addressing common challenges faced by learners, such as difficulty in content generation and idea organization (Firkins et al., 2007). These difficulties often stem from limited linguistic resources and cognitive strain during the prewriting phase. As stated by (Long et al., 2021) clustering offers a flexible, non-linear framework that enables students to externalize their thoughts in an open-ended manner, thereby facilitating the transition from abstract ideas to structured writing. Khalil & Brüne, (2025) Emphasizes that the value of clustering lies in its alignment with natural cognitive processes specifically, the mind's tendency to generate ideas through associations and spontaneous mental connections. In contrast to conventional outlining techniques, which often impose a rigid structure, clustering allows learners to explore multiple perspectives without the fear of error. This freedom can enhance creativity, build confidence, and lead to the discovery of novel insights or subtopics that may be overlooked in more linear approaches. Supporting this perspective, (Oshima & Hogue, 2006) argue that clustering is a practical tool for narrowing broad subjects into focused subtopics. By visually mapping associated ideas around a central theme, students create a web of interconnected concepts that not only facilitates brainstorming but also serves as a guide for the drafting process. These visual maps help writers identify potential paragraph topics and supporting details, contributing to the unity and coherence of the final written product. Therefore, clustering is more than a brainstorming method. It is a strategic prewriting technique that promotes creativity, organization, and clarity in writing. For EFL learners, it serves as a bridge between initial idea generation and coherent written expression, supporting the development of effective writing skills in a second language writing.

Writing in EFL Context

Writing is an essential way to transmit one's ideas, opinions, and arguments through written symbols (Spivey, 2023). It acts as a primary tool for communication in the modern world, enabling individuals to effectively transmit information, emotions, and messages (Prabavathi & Nagasubramani, 2018). With the increasing prevalence of digital platforms such as WhatsApp, Facebook, Telegram, Instagram Direct Messenger, and Line, writing has become an integral part of everyday interactions, where people often convey their feelings and thoughts in written formats.

Likewise, writing is defined by (Nystrand, 2023) as a cognitive process that entails generating ideas, determining how to express them, and structuring them into clear and cohesive sentences and paragraphs. This view highlights that writing is both a cognitive and linguistic process. In a similar vein,

Taufiqulloh,(2025) emphasizes that writing is a gradual process of developing and organizing ideas, expressing them in written form, and then refining through revision and editing, which requires forethought about both the content and the mode of expression. For EFL learners, this makes writing one of the most demanding skills to master, as the difficulty lies not only in producing, articulating, and organizing ideas but also in transforming them into clear and comprehensible language. Furthermore, writing is a complex process that involves planning, drafting, revising, and editing (Maolida & Mustika, 2018). Writing is also tightly related to ability. According to (Sedyastuti et al., 2021), ability refers to the level of skill or power that a person possesses, which reflects their ability in doing something effectively. In the context of writing, ability encompasses the competence to organize words into coherent sentences and apply grammatical rules appropriately. (Nystrand, 2023) highlights that writing entails presenting knowledge in a manner that the reader can understand and manipulating the linguistic system.

Recount Text

Recount text is one of the text types that play an important kinds in the teaching of writing in English as a Foreign Language (EFL) classroom, especially for secondary school students (Lail, 2021). It is widely taught in junior and senior high schools as it encourages students to write based on real-life experiences (Maypida & Damanik, 2024). According to Hidayati (2024), the purpose of recount texts is to assist students in developing their narrative writing abilities and communicating their own experiences in a methodical, sequential manner. The learning objectives for recount text in this curriculum emphasize students' ability to organize ideas coherently, use appropriate grammar and vocabulary, and apply relevant text structures such as orientation, series of events, and reorientation. This aligns with the broader aim of Kurikulum Merdeka, which promotes student centered learning, critical thinking, and contextual understanding in language use (Winantuningtyas, 2025)..

2 METHODOLOGY

This study adopted a quantitative approach with a quasi-experimental design to examine the impact of the clustering technique on enhancing students' ability to write recount texts in an EFL setting. A pre-test and post-test control group design was employed, as it enables comparison of learning outcomes between two groups under controlled conditions, while accommodating the constraints of an existing school setting where random assignment is impractical (Creswell & Creswell, 2017). The research took place at SMA Negeri 2 Slawi during the 2024/2025 academic year, involving 72 tenth-grade students selected through cluster random sampling. Two intact classes participated: Class X-2 served as the experimental group (n = 36), and Class X-1 as the control group (n = 36). Both groups received instruction on recount texts; however, the experimental group was taught using the clustering technique, whereas the control group followed conventional teacher-centered methods.

The primary instrument was a writing test in which students composed a recount text based on a given prompt related to personal experience. Writing performance was assessed using an analytic scoring rubric adapted from (Weigle, 2002), which covered five aspects: content, organization, vocabulary, grammar, and mechanics. Each criterion was rated on a 1–4 scale, with a total score of 20 converted to percentages. Content validity was confirmed by two university lecturers and one experienced high school English teacher to ensure alignment with the 2013 Indonesian Curriculum. Reliability, calculated through inter-rater agreement, produced a Cronbach's Alpha of 0.82, indicating high consistencies.

The research was carried out in three main stages:

1. Pre-test: Both groups wrote a recount text prior to the intervention to establish baseline writing ability.
2. Treatment: Conducted in six instructional sessions. The experimental group used the clustering technique, starting with brainstorming around a central topic in a cluster diagram, expanding branches into details, and then organizing them into a complete text. The control group was taught using traditional methods without structured prewriting.
3. Post-test: Both groups wrote another recount text of similar difficulty after the treatment to assess improvement.

Data were analyzed using SPSS 26. Descriptive statistics (means, standard deviations, and score ranges) were calculated for each group. The Shapiro–Wilk test assessed data normality, while Levene's test examined variance homogeneity. Paired sample t-tests measured within-group improvement, and independent sample t-tests compared post-test scores between groups, with a

significance level set at 0.05. The researcher acted as planner, coordinator, and analyst, ensuring that all procedures were executed systematically and ethically.

Table.1 Normality Test

Variable	N	Sig.
Pre-test Control	36	.140
Post-test Control	36	.104
Pre-test Experimental	36	.230
Post-test Experimental	36	.101

The Shapiro-Wilk test was used to evaluate if the pre- and post-test results in both groups were normally distributed, given each group had less than 50 participants. The results indicated a normal distribution in both groups, with significant values over 0.05 for all tests (e.g., pre-test control = 0.140; post-test experimental = 0.101). In order to assess the impact of the clustering approach on students' writing skills, t-tests were used in the following study as these results satisfied the requirement for utilizing parametric testing.

Table.2 Homogeneity Test.

	Levene Statistic	Sig.
Based on Mean	,337	,563
Based on Median	,268	,606
Based on Median and with adjusted df	,268	,606
Based on trimmed mean	,334	,565

The experimental and control groups' post-test scores were compared to see if there were equivalent variances using Levene's Test for Equality of Variances. To ensure that uneven score dispersion does not impact mean differences, equal variances are a crucial assumption when using the independent samples t-test. The findings demonstrated that the data satisfied the homogeneity assumption, with significance values over 0.05 for all techniques (e.g., based on mean = 0.563) (Table 2). This demonstrates that comparing post-test scores using the independent samples t-test was suitable and that any changes seen may be more firmly ascribed to the therapy than to variance variations across groups.

3 RESULTS

The study findings based on descriptive statistics, homogeneity and normality tests, and hypothesis testing using the independent samples t-test and the paired samples t-test are presented in this part. In the pre-test, the experimental group scored between 53.00 and 73.00, with a mean of 63.14, whereas the control group scored between 45.00 and 73.00, with a mean of 56.58, before to treatment. These numbers show that the experimental group's initial writing proficiency was marginally greater. The experimental group's post-test scores climbed to 81.06 after the intervention, which involved clustering technology for the experimental group and traditional training for the control group. The control group's post-test scores increased to 68.03. The fact that the experimental group improved more indicates that clustering was more successful in helping students come up with ideas, arrange their ideas, and create more cohesive recount texts.

The Shapiro-Wilk test was used to evaluate if the pre- and post-test results in both groups were normally distributed, given each group had less than 50 participants. The results indicated a normal distribution in both groups, with significant values over 0.05 for all tests (e.g., pre-test control = 0.140; post-test experimental = 0.101). In order to assess the impact of the clustering approach on students' writing skills, t-tests were used in the following study as these results satisfied the requirement for utilizing parametric testing.

The experimental and control groups' post-test scores were compared to see if there were equivalent variances using Levene's Test for Equality of Variances. To ensure that uneven score dispersion does not impact mean differences, equal variances are a crucial assumption when using the independent samples t-test. The findings demonstrated that the data satisfied the homogeneity assumption, with significance values over 0.05 for all techniques (e.g., based on mean = 0.563) (Table 2). This demonstrates that comparing post-test scores using the independent samples t-test was

suitable and that any changes seen may be more firmly ascribed to the therapy than to variance variations across groups.

3.1.1 Paired Sample T-test

To evaluate the efficacy of the clustering approach, pre- and post-test scores within the same group were compared using a paired sample t-test. This technique works well for identifying notable changes when the same subjects are assessed twice. The experimental group had an average gain of 13.03 points in their mean score, rising from 68.03 in the pre-test to 81.06 in the post-test. The increase in writing skills was statistically significant, as indicated by the significance value (Sig. 2-tailed) of 0.000 (< 0.05). The alternative hypothesis was accepted as a consequence of these findings, which demonstrate that the clustering approach had a significant beneficial impact.

Table 1. Paired Sample T-test.

Test	N	Mean	Std. Dev.
Pre-test	36	68.03	5.93
Post-test	36	81.06	6.23

3.1.2 Independent Sample T-test

The post-test scores of the experimental group, which was taught using the clustering approach, and the control group, which was taught using traditional teaching, were compared using the independent samples t-test. The experimental group performed better in writing following treatment, as evidenced by their higher mean score (81.06, SD = 6.23) compared to the control group (68.03, SD = 5.93). Levene's test confirmed the assumption of equal variances with a significance value of 0.914 (> 0.05). According to the t-test result, there was a statistically significant difference between the two groups ($t = -9.085$, $df = 70$, $p = 1,000$). According to these results, the alternative hypothesis was accepted as it was shown that the clustering approach significantly improved students' writing skills.

Table 2. Independent Sample T-test.

Group	N	Mean	Std. Dev.
Control	36	68.03	5.93
Experimental	36	81.06	6.23

This study examined the effectiveness of the clustering technique as a prewriting strategy to improve EFL students' recount text writing. Results showed a significant improvement in the experimental group's scores (59.94 to 81.06) compared to the control group (58.59 to 68.03), with t-test results confirming statistical significance ($p < 0.05$). The most notable gains were in organization, followed by content and vocabulary, while grammar and mechanics also improved, though to a lesser extent. These findings align with Cognitive Learning Theory and prior research (Wöhler & Reinhardt, 2021); (Styani, 2010), (Sihara et al., 2024) confirming that clustering aids idea generation, improves coherence, and supports vocabulary development. The technique also increased students' motivation and confidence, making them more active in the writing process. In the context of SMA Negeri 2 Slawi, clustering proved more effective than traditional methods in guiding students' step-by-step and fostering independent learning, in line with the Kurikulum Merdeka. This study extends previous research by assessing clustering's impact on all five writing components, content, organization, vocabulary, grammar, and mechanics through a quasi-experimental approach, offering a more comprehensive understanding of its benefits in recount text writing.

4 CONCLUSIONS

This study explored how the clustering technique influences the development of recount text writing among tenth-grade students at SMA Negeri 2 Slawi. The findings revealed a significant positive impact: students in the experimental group achieved notably higher post-test scores than those in the control group (81.06 compared to 68.03). Statistical analysis supported these results, with the independent samples t-test ($p = 0.000$) indicating a substantial difference between groups, and the

paired samples t-test confirming notable improvement within the experimental group. The most prominent gains were observed in content and organization, consistent with Cognitive Learning Theory, which highlights the advantages of visual methods in easing cognitive load and fostering idea generation. Clustering was particularly beneficial during the planning stage, enabling students to produce, connect, and arrange ideas more efficiently. Classroom observations further showed increased student engagement and reduced anxiety during writing activities. Although the research was confined to two existing classes at a single institution and involved a brief intervention period, the outcomes suggest that clustering is a practical and effective strategy for EFL students struggling with idea development and organization. Future studies are encouraged to examine its application across different writing genres, over extended periods, and in combination with targeted grammar instruction to promote more comprehensive writing proficiency.

ACKNOWLEDGEMENTS

The author expressed sincere gratitude to all individuals and institutions who contributed to the completion of this research. Special appreciation was extended to the English teachers and students of SMA Negeri 2 Slawi for their cooperation and active participation during the study. Prof. Dr. Taufiqulloh, M.Hum., as the first advisor, and Dr. Yuvita, M.Pd., as the second advisor, were deeply appreciated for their invaluable guidance, constructive feedback, and continuous encouragement throughout the research process. The author also conveyed sincere thanks to all lecturers of the English Education Department, Universitas Pancasakti Tegal, for the knowledge, support, and inspiration they had provided during the academic journey. Gratitude was also extended to family, friends, and colleagues who had given unwavering support, motivation, and understanding. Their encouragement had been an essential part of completing this research. Finally, the author acknowledged that this work could not have been accomplished without the grace and blessings of Allah SWT.

REFERENCES

- [1] Bai, B., Guo, W., & Wang, C. (2024). Relationships Between Struggling EFL Writers' Motivation, Self-Regulated Learning (SRL), And Writing Competence In Hong Kong Primary Schools. *Applied Linguistics Review*, 15(1), 135–159.
- [2] Creswell, J. W., & Creswell, J. D. (2017). *Research Design: Qualitative, Quantitative, And Mixed Methods Approaches*. Sage Publications.
- [3] Deane, P., Odendahl, N., Quinlan, T., Fowles, M., Welsh, C., & Bivens-Tatum, J. (2008). Cognitive Models Of Writing: Writing Proficiency As A Complex Integrated Skill. *ETS Research Report Series*, 2008(2), 1–36.
- [4] Firkins, A., Forey, G., & Sengupta, S. (2007). Teaching Writing To Low Proficiency EFL Students. *ELT Journal*, 61(4), 341–352.
- [5] H. Douglas Brown. (2004). *LANGUAGE ASSESSMENT PRINCIPLES AND CLASSROOM PRACTICES*.
- [6] Harmer, J. (2001). Book Review: The Practice Of English Language Teaching. In *RELC Journal* (Vol. 32, Issue 1, Pp. 135–136). <https://doi.org/10.1177/003368820103200109>
- [7] Husna, A., & Multazim, A. (2019). STUDENTS' DIFFICULTIES IN WRITING RECOUNT TEXT AT INCLUSION CLASSES. *LET: Linguistics, Literature And English Teaching Journal*, 9(1), 52–76.
- [8] Hyland, K. (2019). *Second Language Writing*. Cambridge University Press.
- [9] Khalil, R., & Brüne, M. (2025). Adaptive Decision-Making “Fast” And “Slow”: A Model Of Creative Thinking. *European Journal Of Neuroscience*, 61(5), E70024.
- [10] Lestari, E. A., Budiarti, B., & Juhansar, J. (2022). Utilizing Clustering Technique To Enhance Students' English Writing Performance. *English Review: Journal Of English Education*, 10(2), 439–452. <https://doi.org/10.25134/Erjee.V10i2.6245>
- [11] Long, Z.-Z., Xu, G., Du, J., Zhu, H., Yan, T., & Yu, Y.-F. (2021). Flexible Subspace Clustering: A Joint Feature Selection And K-Means Clustering Framework. *Big Data Research*, 23, 100170.
- [12] Maolida, E. H., & Mustika, G. (2018). Students' Writing Process For Project Ibunka: A Case Study Of EFL Writers. *Journal Of English Language Teaching And Linguistics*, 3(3), 203.
- [13] Nurdianingsih, F., Fitriati, S. W., Astuti, P., & Rozi, F. (2024). WRITING DIFFICULTIES FACED BY EFL WRITING LEARNERS OF ENGLISH EDUCATION STUDY PROGRAM. *Proceedings Of Fine Arts, Literature, Language, And Education*, 461–476.

- [14] Nystrand, M. (2023). *What Writers Know: The Language, Process, And Structure Of Written Discourse*. BRILL.
- [15] Oshima, A., & Hogue, A. (2006). *Writing Academic English*. Pearson.
- [16] Prabavathi, R., & Nagasubramani, P. C. (2018). Effective Oral And Written Communication. *Journal Of Applied And Advanced Research*, 3(1), 29–32.
- [17] Pun, J. K. H., Fu, X., & Cheung, K. K. C. (2024). Language Challenges And Coping Strategies In English Medium Instruction (EMI) Science Classrooms: A Critical Review Of Literature. *Studies In Science Education*, 60(1), 121–152.
- [18] Renandya, W. A., & Jacobs, G. M. (2016). *Extensive Reading And Listening In The L2 Classroom*. Springer.
- [19] Restika, Y. (2022). *The Effectiveness Of Clustering Techniques On Students' Writing Ability Of Descriptive Text*. 192. [Http://Repository.lainbengkulu.Ac.Id/10049/](http://Repository.lainbengkulu.Ac.Id/10049/)
- [20] Rico, G. L. (2000). *Writing The Natural Way: Turn The Task Of Writing Into The Joy Of Writing*. Penguin.
- [21] Sari, H. M., Sutapa, Y. G., & Sada, C. (2021). Clustering Technique To Improve Ability Of Generating Ideas In Recount Text Writing. *JELTIM (Journal Of English Language Teaching Innovations And Materials)*, 3(1), 25. <https://doi.org/10.26418/jeltim.v3i1.38880>
- [22] Sedyastuti, K., Suwarni, E., Rahadi, D. R., & Handayani, M. A. (2021). Human Resources Competency At Micro, Small And Medium Enterprises In Palembang Songket Industry. *2nd Annual Conference On Social Science And Humanities (ANCOSH 2020)*, 248–251.
- [23] Shahzad, S. K., Sarwat, S., & Kanwal, S. (2023). Use Of Semantic And Clustering Methods: For Teaching English Vocabulary At Elementary Level. *International Journal Of Academic Research For Humanities*, 3(4), 74–84.
- [24] Sihara, E., Prihantoro, P., & Fauziah, M. (2024). *The Effect Of Clustering Techniques Towards Students' Descriptive Writing Ability*. Institute Agama Islam Negeri Curup.
- [25] Spivey, N. N. (2023). *The Constructivist Metaphor: Reading, Writing And The Making Of Meaning*. Brill.
- [26] Styani, E. W. (2010). *The Effectiveness Of Clustering Technique To Teach Writing Skill Viewed From Students' Linguistic Intelligence (An Experimental Research On Descriptive Writing For The Second Semester Of English Department Of IKIP PGRI Madiun In The Academic Year Of 2009)*. UNS (Sebelas Maret University).
- [27] Sun, Q., & Zhang, L. J. (2023). Examining The Effects Of English As A Foreign Language Student-Writers' Metacognitive Experiences On Their Writing Performance. *Current Psychology*, 42(27), 23743–23758.
- [28] Taufiqulloh, T. (N.D.). *Learner Autonomy In EFL Writing*. Badan Penerbit Universitas Pancasakti Tegal.
- [29] Weigle, S. C. (2002). *Assessing Writing*. Cambridge University Press.
- [30] Wöhler, J., & Reinhardt, R. (2021). The Users' Perspective On How Creativity Techniques Help In The Idea Generation Process—A Repertory Grid Study. *Creativity And Innovation Management*, 30(1), 144–163.