CHAPTER III
RESEARCH METHOD

This chapter outlines the research design and methodology employed in this study. The research design was carefully selected to provide a comprehensive understanding of the research problem. The chapter discusses the rationale behind the choice of research methods, explaining how they align with the research questions and objectives. The research procedures are described in detail, providing a step-by-step account of the research process. This includes information on participant recruitment, data collection methods, and data analysis techniques. The chapter also provides an overview of the study context, including the setting and characteristics of the participants.

To ensure the validity and reliability of the findings, appropriate research instruments were used. The chapter details the development and administration of these instruments and the specific data analysis techniques employed. A diagram is included to visually represent the research design framework and illustrate how the research questions were addressed. By providing a clear and detailed description of the research design and methodology, this chapter establishes the credibility and rigor of the study.

3.1. Research Design

This research employed a mixed-methods research design, combining both quantitative and qualitative approaches to provide a comprehensive understanding of the research problem. This mixed-methods approach allowed for a more comprehended and in-depth exploration of the phenomenon under investigation. By triangulating data from various sources, the researchers aimed to enhance the validity and reliability of the findings. This approach aligns with the research objectives and specific inquiries, which likely necessitate a more comprehensive understanding than solely quantitative data can offer (Bell, 2014; Birmingham & Wilkinson, 2003; Greaney et al., 2012; Hamied, 2017; Walliman, 2005).

During the implementation of the research, convergent parallel design (Creswell, 2021) was employed. This design enables researchers to simultaneously collect and analyze both quantitative and qualitative data, providing a comprehensive understanding of the research problem. This design is particularly

suitable for this research context, as it can illuminate intricate phenomena such as students' writing processes, metacognitive awareness, and the utilization of the SRTI among them. The data interpretation processes are depicted in Figure 3.1.

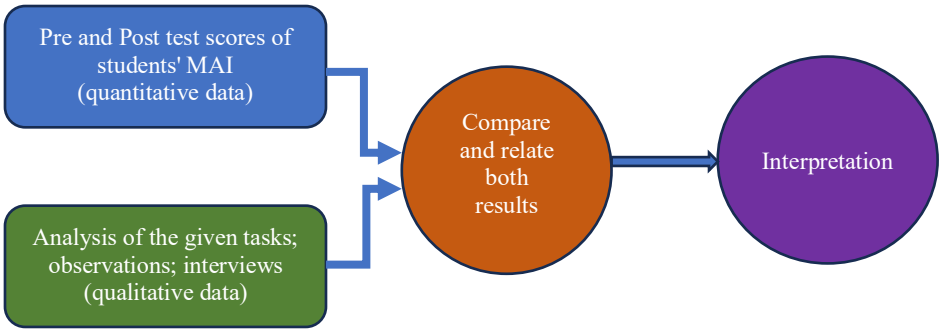

Figure 3. 1 Convergent Parallel Design

The quantitative data employed a quasi-experimental design to assess participants' metacognitive awareness. It involved administering the adopted Metacognitive Awareness Inventory (MAI) before and after a treatment or intervention. Statistical analysis of the pre-test and post-test of students' MAI scores provided robust evidence regarding the intervention's impact on participants' metacognitive awareness levels. The quasi-experimental design used in this research is illustrated as in Figure 3.2.

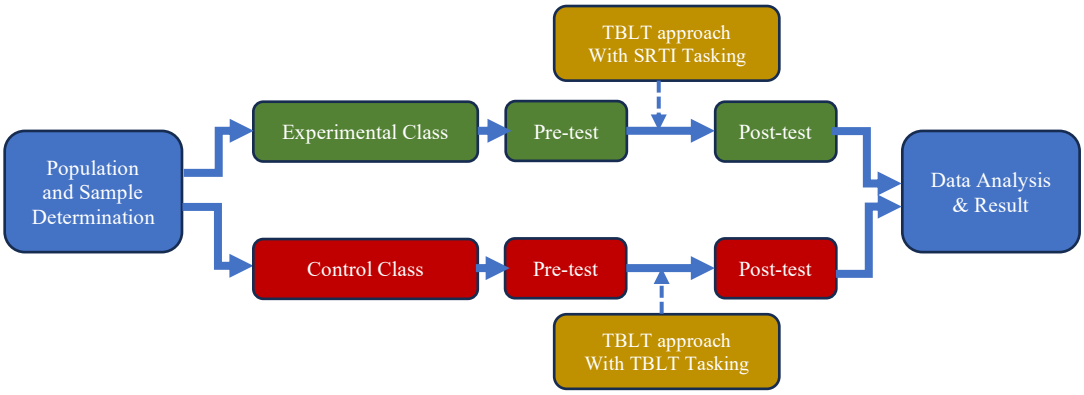

Figure 3. 2. The Quasi-Experimental Design of This Research

The study employed a two-group design, dividing participants into experimental and control classes. Both groups underwent pre- and post-testing utilizing the adopted Metacognitive Awareness Inventory (MAI). Both classes were

instructed using the Task-Based Language Teaching (TBLT) approach, incorporating three project-based activities: a survey, a vlog, and a tour book. The total meeting for both classes was 16 meetings (one semester). These projects served as the overarching objectives for both groups. The distinction between the groups lay in the task implementation procedures. The control group engaged in conventional TBLT tasks for all three projects. Conversely, the experimental group received SRTI-integrated tasks, incorporating self-regulated learning principles within the TBLT framework.

However, the research goes beyond simply quantifying changes. To strengthen the quantitative findings and gain a deeper understanding, it featured qualitative data analysis through document analysis, observations and participants' interview results. The given tasks for control and experimental class during the experiment were analysed to check the possible finding of this research. Along with the document analysis, observation of all participants and interviews with purposively selected participants in both control and experimental classes were conducted. This triangulation strategy allows researchers to compare and corroborate findings from different data sources.

Overall, the mixed methods approach with convergent parallel design offered several advantages. Documents analysis and interviews illuminate the rationale behind participants' MAI scores, providing a more comprehensive and richer context for interpreting the quantitative data. Additionally, qualitative insights validated the statistical result, enhancing the research's credibility. Finally, qualitative data revealed unexpected factors that might be missed by the quantitative method alone, leading to a more comprehensive understanding of the research questions. In sum, the mixed method design facilitates a more thorough and insightful exploration compared to a reliance on a singular data collection methodology.

3.2. Research Population and Samples

This research investigated the impact of a particular instructional method on the metacognitive awareness of non-English major undergraduate students enrolled in English for Specific Purposes (ESP) writing courses. They were studying at educational public universities in Indonesia. The target population comprised

students seeking to enhance their metacognitive awareness to support their writing abilities within the context of their academic disciplines. The purposive sampling, a non-probability sampling technique, was employed to ensure participant alignment with the research objective. It allows for the deliberate selection of participants possessing characteristics directly relevant to the research aims.

This approach offered several advantages. Firstly, it facilitated the recruitment of students from the specific population segment of interest, guaranteeing relevant background knowledge and learning goals. Secondly, focusing on participants in ESP writing courses ensured alignment with the intervention's focus on metacognitive awareness development for their writing skills.

Furthermore, convenience sampling was applied to access readily available and willing participants in the study. Consequently, biases may be introduced into the research's outcomes. The sample may not accurately reflect the broader population, resulting in limited generalizability. However, the sample for this research had to meet the following criteria:

1) They were undergraduate public university students during the research was conducted.
2) They were non-English major students.
3) They were active enrolment in ESP classes.
4) The writing project was one of the inclusions in their ESP syllabus.
5) Task-Based Language Teaching was conducted as their current instructional method in the class.

The chosen instructional method (Task-Based Language Teaching) played a crucial role in the research design. Selecting participants already familiar with Task-Based Language Teaching allowed for a more controlled study environment, facilitating the introduction of the intervention without confounding variables related to unfamiliarity with the instructional method itself.

Within the purposive sampling framework applied by this research, a convenience sub-sampling strategy was further utilised to refine participant selection. While purposive sampling ensured participants belonged to the target population of non-English major ESP writing learners (as described previously),

the convenience sub-sample introduced an element of practicality. The sampling approach prioritised accessibility and streamlined recruitment. Selecting samples from a single public university in Indonesia facilitated the process and minimised logistical challenges associated with geographically dispersed recruitment. Additionally, focusing on students from the same semester (fourth semester) and the same major (Tourism Industry) yielded a more homogenous sample.

This homogeneity strengthens the research's internal validity. By possessing similar academic background and specific English language needs within the tourism field, extraneous variables are potentially minimised. This allows for a more focused evaluation of the intervention's effect on the target population segment. The specific sample comprised non-English major undergraduate students enrolled in the fourth-semester English for Tourism (ESP) course offered at the aforementioned public university. Thus, to decide the minimum number of sample, *G*Power 3.1* application was used. The result can be seen on Figure 3.2.

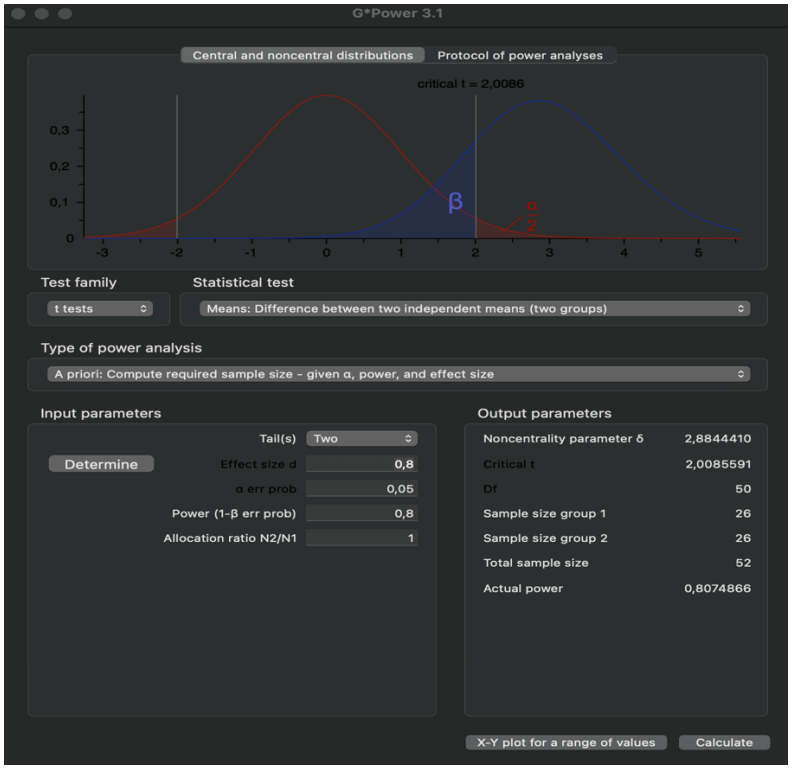

Figure 3. 3 G*Power calculation for minimal sample size

For the t-test involving means, a priori power analysis was conducted. The input parameters are: two-tailed hypothesis, large effect size convention (0.8), alpha

error probability (0.05), power (1 - alpha error probability), and allocation ratio (1). The analysis yielded no centrality parameter delta equal to 2.8844410 and critical t equal to 2.0085591. To achieve an actual power of 0.8074866, a minimum sample size of 52 (26 for each group) is required.

Thus, this research involved a total of 89 undergraduate students who were non-English majors. The sample displayed a gender distribution of 53 females and 36 males, with ages ranging from 19 to 22 years old. To ensure unbiased allocation of samples, a random assignment sampling (Lavrakas et al., 2019) using a random picker application was utilised. This process divided the samples into two distinct classes: an experimental class and a control class. Random allocation strengthens the study's internal validity by minimising selection bias and controlling for pre-existing differences between the classes that could potentially influence the results. The duration of the class assignment was one semester. For specific information about the sample, Table 3.1 is served.

Table 3. 1 Research Samples

Classes	Samples		
	Gender	Count	Total
Experiment	Male	20	45
	Female	25	
Control	Male	15	44
	Female	29	

After they were grouped. The experimental class received the specific instructional intervention under investigation: Self-Regulated Task Instruction (SRTI). This allowed the researcher to assess the impact of SRTI on the samples' metacognitive awareness outcome compared to the control class. Meanwhile, the control class continued with their typical Task-Based Language Teaching instruction (TBLT) without the SRTI intervention. The control class served as a benchmark for comparison, enabling the researcher to isolate the specific effects of the SRTI intervention on the experimental class. By focusing on a purposefully selected sample of ESP writing learners, this research aims to contribute to the development of targeted solutions and evidence-based recommendations for

improving their metacognitive awareness to achieve better writing skills through SRTI.

3.3. Data Collection and Instrumentation

This research adopted a mixed-method research design, strategically integrating both quantitative and qualitative data collection methods to gain a comprehensive understanding of the samples' metacognitive awareness. This approach acknowledges the complexity of the phenomenon under investigation, allowing for the exploration of both the measurable aspects (through quantitative data) and the lived experiences (through qualitative data) of metacognitive awareness.

The quantitative data were gathered through the implementation of the adopted Metacognitive Awareness Inventory (MAI) proposed by Schraw and Dennison (1994). The MAI is a psychometrically accepted instrument designed to assess individuals' metacognitive awareness across various domains. In this research, the adopted version focused on two specific aspects of metacognitive awareness crucial for successful learning: knowledge of cognition and regulation of cognition. By administering the adopted MAI to the samples, the research aimed to obtain quantifiable data regarding their level of awareness in these key areas.

Further, the qualitative data were obtained through three complementary methods: observation, document analysis and semi-structured interviews. Observations were implemented during the learning process. Document analysis involved a systematic examination of relevant documents (tasks given to both experimental and control class) that might reveal samples' metacognitive awareness during the learning process. Semi-structured interviews, on the other hand, provided a platform for samples to share their experiences and perspectives on their own metacognitive awareness in an open-ended and in-depth manner. This combination of qualitative methods aimed to capture the complexity of the samples' experience with metacognitive awareness, complementing the quantitative data obtained from the adopted MAI. By integrating both quantitative and qualitative data through a mixed-methods approach, this research seeks to provide a holistic and comprehensive understanding of samples' metacognitive awareness development.

A further comprehensive explanation of each data collection and instrumentation is described in the following sub-chapter.

3.3.1. The Adopted Metacognitive Awareness Inventory (MAI)

This research applied a modified version of the Metacognitive Awareness Inventory (MAI) developed by Schraw and Dennison (1994) to assess samples' metacognitive awareness. The original MAI comprises 52 statements categorised into two primary dimensions: Knowledge of Cognition (KoC) and Regulation of Cognition (RoC). KoC is further subdivided into declarative, procedural, and conditional knowledge, while RoC includes planning, information management strategies, comprehension monitoring, debugging strategies and evaluation.

For the purposes of this research, a simplified version of the MAI was adopted, utilising only 25 statements. The adopted items were validated using content validity (Sireci, 1998). Two experts in cognition study and TPACK were participated to decide the simplified version of the MAI. The first selection criteria was a content selection to make sure all items are represented. The second criteria is evaluating the clarity and relevance of the items. However, the statement items remain as the MAI items.

The adoption was done by reducing the items from 52 to 25. So, the reliability test result was comprehended from the MAI by Schraw and Dennison (1994). Researchers employed various factor analysis techniques, including both unrestricted and restricted models, to assess the items. In the unrestricted analysis, separate orthogonal and oblique rotations were conducted. Both analyses yielded six distinct factors, each accounting for a substantial portion of the overall variance. Notably, the oblique rotation, which permits correlations between factors, unveiled substantial correlations (exceeding $r = 0.30$) between all pairs of factors. Conversely, the orthogonal rotation, which presumes no correlation between factors, artificially constrained the relationships between the factors.

Restricted factor analyses were conducted employing both oblique and orthogonal rotations, both yielding nearly identical two-factor solutions. Notably, the oblique rotation revealed a substantial correlation ($r = 0.54$) between the two factors, whereas the orthogonal rotation, by its inherent assumption of no correlation, yielded a significantly lower correlation coefficient. A limited number

of items exhibited cross-loadings exceeding 0.30 on both factors. Reliability analysis demonstrated high internal consistency for items loading on each factor ($\alpha = 0.91$), with an overall reliability for the instrument being $\alpha = 0.95$.

This selection ensured a targeted focus on all key aspects of metacognitive awareness while maintaining sample engagement. Specifically, eight statements addressed KoC, and 17 statements assessed RoC. The adopted MAI and their category can be seen in Table 3.2.

Table 3. 2 Adopted MAI Statements

Primary Dimension	Sub-divisions	MAI Statements	Content Selection	Adopted MAI
Knowledge of Cognition	Declarative Knowledge	5. I understand my intellectual strengths and weaknesses. 10. I know what kind of information is most important to learn. 12. I am good at organizing information. 16. I know what the teacher expects me to learn. 17. I am good at remembering information. 20. I have control over how well I learn. 32. I am a good judge of how well I understand something. 46. I learn more when I am interested in the topic.	• *The factual knowledge the learner needs before being able to process or use critical thinking related to the topic.* • *Knowing about, what, or that* • *Knowledge of one's skills, intellectual resources, and abilities as a learner.* • *Students can obtain knowledge through presentations, demonstrations, and discussions.*	10. I know what kind of information is most important to learn. 16. I know what the teacher expects me to learn. 46. I learn more when I am interested in the topic.
	Procedural Knowledge	3. I try to use strategies that have worked in the past. 14. I have a specific purpose for each strategy I use. 27. I am aware of what strategies I use when I study. 33. I find myself using helpful learning strategies automatically.	• *The application of knowledge for the purposes of completing a procedure or process.* • *Knowledge about how to implement learning procedures (e.g., strategies).* • *Requires students to know the process as well as when to apply the process in various situations.* • *Students can obtain knowledge through discovery, cooperative learning, and problem-solving.*	3. I try to use strategies that have worked in the past. 14. I have a specific purpose for each strategy I use.

Primary Dimension	Sub-divisions	MAI Statements	Content Selection	Adopted MAI
	Conditional Knowledge	15. I learn best when I know something about the topic. 18. I use different learning strategies depending on the situation. 26. I can motivate myself to learn when I need to. 29. I use my intellectual strengths to compensate for my weaknesses. 35. I know when each strategy I use will be most effective.	• *The determination under what circumstances specific processes or skills should transfer.* • *Knowledge about when and why to use learning procedures.* • *Application of declarative and procedural knowledge with certain conditions presented.* • *Students can obtain knowledge through simulation.*	18. I use different learning strategies depending on the situation. 26. I can motivate myself to learn when I need to. 35. I know when each strategy I use will be most effective.
Regulation of Cognition	Planning	4. I pace myself while learning in order to have enough time. 6. I think about what I really need to learn before I begin a task. 8. I set specific goals before I begin a task. 22. I ask myself questions about the material before I begin. 23. I think of several ways to solve a problem and choose the best one. 42. I read instructions carefully before I begin a task. 45. I organize my time to best accomplish my goals.	• *Planning, goal setting, and allocating resources prior to learning.*	6. I think about what I really need to learn before I begin a task. 8. I set specific goals before I begin a task. 42. I read instructions carefully before I begin a task. 45. I organize my time to best accomplish my goals.

Primary Dimension	Sub-divisions	MAI Statements	Content Selection	Adopted MAI
	Information Management Strategies	9. I slow down when I encounter important information. 13. I consciously focus my attention on important information. 30. I focus on the meaning and significance of new information. 31. I create my own examples to make information more meaningful. 37. I draw pictures or diagrams to help me understand while learning. 39. I try to translate new information into my own words. 41. I use the organizational structure of the text to help me learn 43. I ask myself if what I'm reading is related to what I already know. 47. I try to break studying down into smaller steps. 48. I focus on overall meaning rather than specifics.	• *Skills and strategy sequences used to process information more efficiently (e.g., organizing, elaborating, summarizing, selective focusing).*	9. I slow down when I encounter important information. 13. I consciously focus my attention on important information. 39. I try to translate new information into my own words. 47. I try to break studying down into smaller steps.
	Comprehension Monitoring	1. I ask myself periodically if I am meeting my goals. 2. I consider several alternatives to a problem before I answer. 11. I ask myself if I have considered all options when solving a problem. 21. I periodically review to help me understand important relationships. 28. I find myself analysing the usefulness of strategies while I study. 34. I find myself pausing regularly to check my comprehension. 49. I ask myself questions about how well I am doing while learning something new.	• Assessment of one's learning or strategy use.	1. I ask myself periodically if I am meeting my goals. 2. I consider several alternatives to a problem before I answer. 49. I ask myself questions about how well I am doing while learning something new.

Primary Dimension	Sub-divisions	MAI Statements	Content Selection	Adopted MAI
	Debugging Strategies	25. I ask others for help when I don't understand something. 40. I change strategies when I fail to understand. 44. I re-evaluate my assumptions when I get confused. 51. I stop and go back over new information that is not clear. 52. I stop and reread when I get confused.	• Strategies to correct comprehension and performance errors	25. I ask others for help when I don't understand something. 40. I change strategies when I fail to understand. 52. I stop and reread when I get confused.
	Evaluation	7. I know how well I did once I finish a test. 19. I ask myself if there was an easier way to do things after I finish a task. 24. I summarize what I've learned after I finish. 36. I ask myself how well I accomplish my goals once I'm finished. 38. I ask myself if I have considered all options after I solve a problem. 50. I ask myself if I learned as much as I could have once I finish a task.	• Analysis of performance and strategy effectiveness after a learning episode.	19. I ask myself if there was an easier way to do things after I finish a task. 36. I ask myself how well I accomplish my goals once I'm finished. 50. I ask myself if I learned as much as I could have once I finish a task.

Based on Table 3.2., The original MAI comprises 52 statements including the two primary dimensions of metacognitive awareness: KoC and RoC. To ensure alignment with the research objectives of this research, a streamlined version of the MAI was developed, utilising only 25 strategically selected statements. Specifically, eight statements addressed KoC and 17 statements assessed RoC. This selection process prioritised statements that comprehensively addressed all key aspects of both KoC (including its subcategories) and RoC. The simplification of statements focused on retaining the core content relevant to the research aims while maintaining clarity and samples comprehension. However, the adopted MAI statements were translated to Bahasa Indonesia to make sure clearer understanding of the samples toward the statement given.

In addition, the original MAI employed a dichotomous (yes/no) response format with a score of 1 assigned for each endorsed statement. In this research, the adopted MAI applied a five-point Likert scale ranging from “always” to “never.” This modification aimed to capture a more comprehensive understanding of the samples’ metacognitive awareness by allowing them to express varying degrees of agreement with each given statement. The Likert scale aligns with the research objective of exploring samples’ attitudes, opinions, and perceptions regarding their metacognitive awareness.

The Likert scale, employed to assess metacognitive awareness, offers the capability to capture nuanced responses, augment data richness, and enhance analytical flexibility. In this research, there are five reasons to adapt the statements into a Likert scale rather than a dichotomous option. This gradation allows researchers to gather more detailed information about respondents’ feelings or perceptions regarding a specific statement (Syah, 2020) in this context, metacognitive awareness. Warmbrod (2014) emphasised that Likert scores, which are summated scores, offer a more reliable measure of a construct defined by multiple items. This approach mitigates the impact of random measurement error, resulting in more stable and consistent results. In contrast, dichotomous options may not adequately capture the complexity of respondents’ attitudes, potentially leading to less reliable data. For this research, the Likert scale was necessary to provide ordinal data for analysis, as parametric tests were employed.

To collect the data, all samples completed the adopted MAI at two distinct time points. The first completion occurred prior to the experimental phase, establishing a baseline measure of their metacognitive awareness. The second administration took place upon completion of the experimental phase, enabling the investigation of potential changes in metacognitive awareness resulting from the intervention. The pre-and post-test results were subsequently subjected to statistical analysis to evaluate the impact of the experimental manipulation on the samples’ metacognitive awareness.

3.3.2. Observations

Concurrent observations were conducted throughout the experimental phases to supplement the quantitative data obtained from the adapted MAI. This involved observing two sample groups: the experimental class engaged with Task-Based Language Teaching (TBLT) approach implementing Self-Regulated Task Instruction (SRTI) as tasking procedures, and the control class received regular Task-Based Language Teaching (TBLT) with common TBLT tasking procedures. While individual sample observations were conducted, a comprehensive approach focused on capturing both classes' overall learning environment and instructional practices.

An observation sheet was specifically developed for this research, drawing upon the core criteria of the MAI. This instrument aimed to provide additional context and validate the findings derived from the adapted MAI data. The course was held a whole semester (16 meetings). Those meetings were constructed into three project phases: Project 1: tourism survey; Project 2: Promotional Vlog; Project 3: A Tour book. Thus, the observations were held three times based on the three project phases and divided after the project was explained. The researchers played as the observer. The observer systematically documented the observations using the adapted sheet throughout the experimental phases. This triangulation approach enhanced the reliability and trustworthiness of the qualitative data collected. The observation sheet is mentioned in Table 3.3.

Table 3. 3 The Observation Sheet

Aspects	Observed Situation	Occurrence (Yes/No)	Notes
Knowledge of cognition	Declarative Knowledge		
	Students show prior knowledge related to the discussed topic.		
	Students demonstrate an interest in the topic.		
	Students can choose the most important information for them to learn.		
	Procedural Knowledge		
	Students perform the strategies to do the task.		
	Conditional Knowledge		

	Students perform different ways to solve tasks in different situations.
Regulation of cognition	Planning
	Students do planning and making timelines.
	Students ask for instruction before beginning the task.
	Information management strategies
	Students ask questions when the task is unclear.
	Students divide the task into smaller parts.
	Comprehension Monitoring
	Students review the strategies
	Debugging strategies
	Students ask for help
	Students redo the task if they fail.
	Evaluation
	Students summarize the learning process and give their own feedback.

The occurrences of the observed situation were recorded using a dichotomous response format (yes/no). The data were quantified into numbers: for each "yes" occurrence, was given 1 (one), and for "no" occurrence was given 0 (zero). All data were calculated for both classes (experimental and control). The result is displayed individually for each aspect (KoC and RoC), sub-aspects (KoC: declarative, procedural, and conditional knowledge; RoC: planning, information management strategies, comprehension monitoring, debugging strategies, and evaluation), and classes (experimental and control).

Frequency tables and bar charts are essential tools for summarizing and visualizing dichotomous observation data. Frequency tables provide a concise overview, listing the two categories of the dichotomous variable and the corresponding number of observations within each category. This information can be further enhanced by calculating relative frequencies and percentages, which provide a clearer picture of the distribution of observations.

Further, bar charts offer a visual representation of the data, making it easier to identify patterns and trends. The x-axis typically represents the two categories, while the y-axis represents the frequency or proportion of observations. Each

category is visually represented by a bar, with the height of the bar corresponding to its frequency or proportion. By examining the bar chart, researchers can quickly identify which category has a higher or lower frequency and visually assess the overall distribution of observations.

By combining frequency tables and bar charts, researchers can gain a valuable initial understanding of the distribution of dichotomous observation data. These descriptive statistics provide a foundation for further analysis and can help to guide the selection of appropriate statistical methods for more in-depth investigation. However, it is important to acknowledge the limitations of this approach. Frequency tables and bar charts were combined with document and interview analyses.

3.3.3. TBLT Tasks and SRTI Tasks Analysis

Complementing the concurrent observation, a document analysis was conducted to enrich the qualitative data collection. This phase systematically examined two key instructional materials: the Self-Regulated Task Instruction (SRTI) project plan for the experimental class and the Task-Based Language Teaching (TBLT) project plan for the control class. Notably, both project plans shared a common learning objective -producing a tour book- and were further segmented into three identical sub-projects: a survey, a vlog, and the final tour book itself.

The primary objective of this document analysis was to ensure treatment fidelity. By analysing the project plans, the research aimed to verify that the designated instructional approach (SRTI for the experimental class and TBLT for the control class) was indeed implemented as planned. This meticulous analysis served as a crucial step in establishing the internal validity of the research. It refers to the extent to which the observed outcomes can be definitively attributed to the independent variable (instructional approach in this case), and not extraneous factors. Verifying the fidelity of treatment implementation through document analysis strengthened the internal coherence of the research design and supported the confidence in the causal inferences drawn from the findings. The task given to the control group (TBLT) and to the experimental group (SRTI) were analysed using thematic analysis by Braun and Clarke (2012). Further explanation for the analysis is described on separate subchapter (3.5. Data Analysis).

3.3.4. Interviews

This research employed semi-structured interviews to strengthen the construct validity of the findings. Construct validity refers to the degree to which a research instrument measures the intended construct (metacognitive awareness in this case). By triangulating the quantitative data (the result of the samples' adapted Metacognitive Awareness Inventory) and the qualitative data through concurrent observations, the interviews aimed to provide a more comprehensive understanding of the samples' metacognitive awareness.

The participants were selected using data saturation. Since the data gather have been reached from the result of quantitative data. The chosen participants were taken based on diverse sample (from higher achiever, middle achiever and lower achiever) for each group, reflexivity and documentation (Fusch & Ness, 2015; Mwita, 2022). Thus, a purposive sampling technique was chosen to strategically select eight interview samples. This approach ensures that the chosen interviewee represents a diverse range of experiences within the experimental class. A web-based random number generator was subsequently utilised to randomly select the eight interviewee names, further mitigating potential bias in sample selection. The interviews were conducted individually in a controlled environment. It aimed to minimise the potential influence of one interviewee's responses on another and to encourage interviewees to openly share their perspectives on their metacognitive awareness.

A semi-structured interview procedure was meticulously developed to guide the interview process. It comprised eight core questions, each aligned with specific aspects and sub-aspects of the adapted MAI. These core questions served as a foundation for the interview while allowing for flexibility to explore unanticipated insights or dig deeper into specific areas based on the interviewee's responses. Additionally, probing questions were designed to complement the core questions and elicit more detailed and comprehensive information from the interviewees regarding their metacognitive awareness experiences. A detailed explanation of the interview questions and their corresponding probing questions is provided in the following section.

The first three interview questions ask about the interviewee's knowledge of cognition including declarative knowledge, procedural knowledge, and conditional knowledge. Each of them is represented by one core question as follow:

1) *In your past academic experiences, how did you balance your own interest in a topic with understanding the key information the teacher wanted you to learn? Can you give an example?*

This question explores the interviewees' declarative knowledge represented by numbers (see Table 3.2), and probes the interviewees' ability to:

- *Identify key information (10)*: It asks them to explain how they determine what is important to learn.
- *Understand teacher explanation (16)*: They need to demonstrate awareness of what the teacher aims for them to gain.
- *Balance interest with learning (46)*: It assesses how they navigate situations where personal interest might not align perfectly with the curriculum.

2) *Describe a situation where you encountered a new learning challenge. How did you draw on learning strategies that had been successful for you in the past, and how did you adapt those strategies to fit the specific needs of the new challenge?*

This question explores the interviewee's procedural knowledge represented by numbers (see Table 3.2), and probes the interviewees' ability of:

- *Leveraging past strategies (3)*: It asks the interviewees to provide a specific example of using a learning strategy that worked before.
- *Adapting strategies for purpose (14)*: It comprehends how they modified the strategy to address the unique demands of the new challenge. By asking about adaptation, the researcher may assess their ability to analyse the situation and choose the appropriate learning methods.

3) *Imagine you are assigned a project that requires you to learn a new skill. Describe your approach to tackling this project. How would you decide which learning strategies to use, and how would you stay motivated throughout the learning process?*

This question explores the interviewee's conditional knowledge represented by numbers (see Table 3.2), and probes the ability to:

- *Use different strategies (18)*: It encourages the interviewees to explain how they choose a learning strategy based on the situation.
- *Self-motivation (26)*: It probes how they motivate themselves to learn something new, especially when there might not be inherent interest.
- *Know when to use strategies (35)*: By asking them to describe their approach, the researcher can gauge their understanding of when specific strategies are most effective.

Meanwhile, for the regulation of cognition, there are five questions representing planning, information management strategies, comprehension monitoring, debugging strategies, and evaluation. One question represents each of them as follows:

4) *Tell me about your process for preparing to tackle a new project or assignment. How do you ensure you understand the task requirements, set achievable goals, and organise your time effectively to achieve success?*

This question incorporates all four statements of planning (see Table 3.2), and it probes the ability of:

- *Thinking about what needs to be learned (6)*: It asks them to explain how they identify key learning points before diving in.
- *Setting specific goals (8):* It prompts them to describe their goal-setting process for breaking down larger tasks.
- *Reading instruction carefully (42):* It implies the importance of understanding instructions at the start.
- *Organising time (45):* It probes their methods for planning and managing their time to achieve those goals.

5) *Describe your strategies for actively engaging with new information during learning. How do you identify key points, ensure you retain them, and solidify your understanding?*

This question explores four aspects of information management strategies (see Table 3.2), and it probes the ability of:

- *Identifying and focusing on important information (9 &13):* It prompts the interviewees to explain how they recognise crucial information and direct their attention accordingly.

- *Processing information through rephrasing (39):* It encourages them to describe their methods for internalising new information, potentially including strategies like summarising or translating into their own words.
- *Breaking down study tasks (47):* It probes their approach to making large study tasks more manageable.

6) *Tell me about your approach to self-assessment during the learning process. How do you check your understanding and ensure you are on track to achieve your learning goals?*

This question incorporates three statements of comprehension monitoring (see Table 3.2), and it explores the interviewee's ability to:

- *Self-monitoring progress (1):* It encourages the interviewee to explain how they track their progress towards goals.
- *Consider alternatives (2):* While not directly mentioned, considering alternatives can be a way to deepen understanding. By asking about self-assessment, the researcher might indirectly reveal if the interviewee explores various approaches to solidify learning.
- *Self-questioning (49):* It prompts them to describe how they use self-questioning to assess their comprehension and identify areas needing further exploration.

7) Learning doesn't always go smoothly. Describe a situation where you encountered difficulty understanding a concept while studying. How did you approach this challenge? Did you seek help, change your learning strategies, or revisit the material in a different way?

This question explores all statements of debugging strategies (see Table 3.2), and it probes to see the ability of:

- *Seeking help (25):* It asks for a specific example of how they handle encountering a learning obstacle and whether seeking help from others is part of their process.
- *Adapting strategies (40):* It prompts them to describe how they adjust their learning approach when they don't understand something initially.
- *Rereading for clarification (52):* It encourages them to explain if revisiting the material is a strategy they use to overcome confusion.

8) *Walk me through your thought process after completing a project or task. What questions do you typically ask yourself to evaluate your performance and identify areas for improvement?*

This question incorporates all three statements of evaluation as presented in Table 3.2, and it explores the interviewee's ability to:

- *Self-reflection on task completion (19):* It prompts them to describe how they reflect on the task itself and whether they could have done things more efficiently.
- *Goal achievement (36):* It encourages them to explain how they assess whether they achieved their goals for the task.

Learning optimization (50): It allows them to discuss if they explored all potential learning opportunities during the task and could have maximized their knowledge gain.

All of those questions were translated into Bahasa Indonesia to ensure the interviewee's comprehension of the questions.

3.3.5. Students' Writing Outcome Analysis

One of aims of this research is to investigate the efficacy of Self-Regulated Task Instruction (SRTI) on student writing outcomes. To achieve this, a comparative analysis was conducted on the tour books created by two group of students: one from the experimental group that utilised SRTI, and another from a control group that use common TBLT tasking. The analysis employed the Common European Framework of Reference (CEFR) for Languages (Division, 2001) as its framework for evaluating creative writing, recognizing the tour book as a distinct form of creative expression within the CEFR's scope. The specific CEFR criteria utilized for this analysis are detailed in Table 3.4.

Table 3. 4 CEFR Scale for A Creative Writing

C2
Can write clear, smoothly flowing, and fully engrossing stories and descriptions of experience in a style appropriate to the genre adopted.
C1
Can write clear, detailed, well-structured and developed descriptions and imaginative texts in an assured, personal, natural style appropriate to the reader in mind.

B2
Can write clear, detailed descriptions of real or imaginary events and experiences marking the relationship between ideas in clear connected text, and following established conventions of the genre concerned.
Can write clear, detailed descriptions on a variety of subjects related to his/her field of interest. Can write a review of a film, book or play.
B1
Can write straightforward, detailed descriptions on a range of familiar subjects within his field of interest. Can write accounts of experiences, describing feelings and reactions in simple connected text.
Can write a description of an event, a recent trip - real or imagined.
Can narrate a story.
A2
Can write about everyday aspects of his environment e.g. people, places, a job or study experience in linked sentences.
Can write very short, basic descriptions of events, past activities and personal experiences.
Can write a series of simple phrases and sentences about their family, living conditions, educational background, present or most recent job.
Can write short, simple imaginary biographies and simple poems about people.
A1
Can write simple phrases and sentences about themselves and imaginary people, where they live and what they do.

B2 level collectively describes a writer who possesses a strong foundation in writing skills. They can effectively communicate their ideas clearly and concisely, demonstrated by their ability to craft clear and detailed descriptions of real or imagined events and experiences. These descriptions are not only vivid but also logically connected, showcasing the writer's understanding of how different ideas and events relate to each other within the narrative. Furthermore, the writer can effectively communicate their knowledge and understanding within their chosen field of study, producing clear and detailed descriptions on a variety of subjects related to their area of interest. Finally, they possess critical thinking and analytical skills, as evidenced by their ability to write insightful reviews of films, books, or plays, offering constructive criticism while maintaining a clear and concise writing style.

While B1 level outlines a range of writing abilities, suggesting a writer who can effectively communicate basic information and personal experiences. They can produce straightforward and detailed descriptions on various topics within their field of interest, demonstrating a basic understanding of the subject matter. This

writer can also effectively recount personal experiences, expressing their feelings and reactions in a simple and connected manner. This indicates an ability to convey emotions and connect events in a basic narrative. Moreover, they can write descriptions of events, such as a recent trip (real or imagined), showcasing their ability to describe scenes and experiences. Finally, they can narrate a story, indicating a basic understanding of storytelling elements such as plot, characters, and a beginning, middle, and end. These skills suggest a foundation in writing, although further development may be needed to achieve more complex and sophisticated writing abilities. By comparing the tour books produced by students from both groups, this research sought to understand the potential impact of SRTI on various aspects of student writing, such as creativity, fluency, accuracy, and overall communicative effectiveness.

Given that the CEFR (Common European Framework of Reference) classifies the creation of a tour book as a creative writing task requiring B1-B2 level proficiency (as outlined in Table 3.4), the B2 CEFR Writing Assessment Subscales (Emak & Ismail, 2021) were adopted as the primary framework for evaluating the student-produced tour books.

Table 3. 5 CEFR Writing Assessment Subscales

B2	CONTENT	COMMUNICATIVE ACHIEVEMENT	ORGANISATION	LANGUAGE
5	All content is relevant to the task. Target reader is fully informed.	Uses the conventions of the communicative task effectively to hold the target reader's attention and communicate straightforward and complex ideas, as appropriate	Text is well organised and coherent, using a variety of cohesive devices and organisational patterns to generally good effect.	Uses a range of vocabulary, including less common lexis, appropriately. Uses a range of simple and complex grammatical forms with control and flexibility. Occasional errors may be present but do not impede communication.
4	Performance shares features of Bands 3 and 5			
3	Minor irrelevances and/or omissions may be present. Target reader is on the whole informed.	Uses the conventions of the communicative task to hold the target reader's attention and communicate straightforward ideas.	Text is generally well organised and coherent, using a variety of linking words and cohesive devices.	Uses a range of everyday vocabulary appropriately, with occasional inappropriate use of less common lexis. Uses a range of simple and some complex grammatical forms with a good degree of control. Errors do not impede communication.
2	**Performance shares features of Bands 1 and 3**			
1	Irrelevances and misinterpretation of task may be present. Target reader is minimally informed.	Uses the conventions of the communicative task in generally appropriate ways to communicate straightforward ideas.	Text is connected and coherent, using basic linking words and a limited number of cohesive devices.	Uses everyday vocabulary generally appropriately, while occasionally overusing certain lexis. Uses simple grammatical forms with a good degree of control. While errors are noticeable, meaning can still be determined.
0	Content is totally irrelevant. Target reader is not informed	Performance below Band 1		

The evaluation of the tour books produced by students in the experimental and control groups was conducted through a comprehensive assessment process. Each book was meticulously graded across four key dimensions:

- **Content:** This criterion assessed the depth and richness of the information presented in the tour book, including the accuracy and relevance of target readers.
- **Communicative Achievement:** This aspect focused on how effectively the student conveyed their intended message to the reader. It considered factors such as straightforward communication and complex ideas, and the overall impact of the writing on the audience.
- **Organization:** This dimension evaluated the structure and flow of the tour book. It assessed the logical progression of ideas, the effective use of headings and subheadings, and the overall clarity and coherence of the presentation.
- **Language:** This criterion examined the accuracy and appropriateness of the language used in the tour book. It considered aspects such as grammar, vocabulary, punctuation, and the overall level of linguistic sophistication.

Following the evaluation, a comparative analysis was undertaken to determine whether the tour books produced by students in the experimental group, who received instruction through SRTI, exhibited significantly higher scores across these four dimensions compared to the tour books produced by students in the control group. This comparative analysis aimed to investigate the potential impact of SRTI on various aspects of student writing, including content development, communicative effectiveness, organizational skills, and linguistic proficiency.

3.4. Research Procedures

This research adopted a convergent mixed-method design to investigate the effectiveness of integrating self-regulated principles into task instruction for language learning. This approach acknowledges the comprehensive nature of self-regulated learning, allowing for the exploration of both objectively measurable outcomes (quantitative data) and samples' lived experiences (qualitative data) (Dornyei, 2007; Hamied, 2017).

The research commenced with a critical review of self-regulation theories within the second language acquisition domain. The research embarked on the development of a theoretically grounded task instruction model. This model explicitly incorporated self-regulation strategies designed to enhance learners' metacognitive awareness, planning skills, and self-monitoring abilities during task completion. This newly developed model served as the foundation for intervention implemented in the experimental phase of the research.

To specifically evaluate the effectiveness of the SRTI, a quasi-experimental design was employed. This design involved groups of samples assigned to an experimental class exposed to SRTI tasking, and a control class receiving common TBLT tasking. To ensure internal validity and mitigate potential selection bias, samples were purposefully selected based on pre-determined criteria.

A multimodal data collection approach was utilised to comprehensively assess the impact of the intervention. Qualitative data were gathered through the administration of a psychometrical instrument, as the adapted Metacognitive Awareness Inventory (MAI) described earlier. Qualitative data were collected through concurrent observation of classroom interactions within both groups. Additionally, document analysis of instructional materials used in the experiment and control classes was conducted to corroborate the fidelity of treatment implementation. The analysis was also done on the sample result of the project. Finally, semi-structured interviews were conducted with a random sample of interviewees from the experimental class to gain deeper insights into their experiences with the SRTI model. Overall, this research procedure can be illustrated in Figure 3.3.

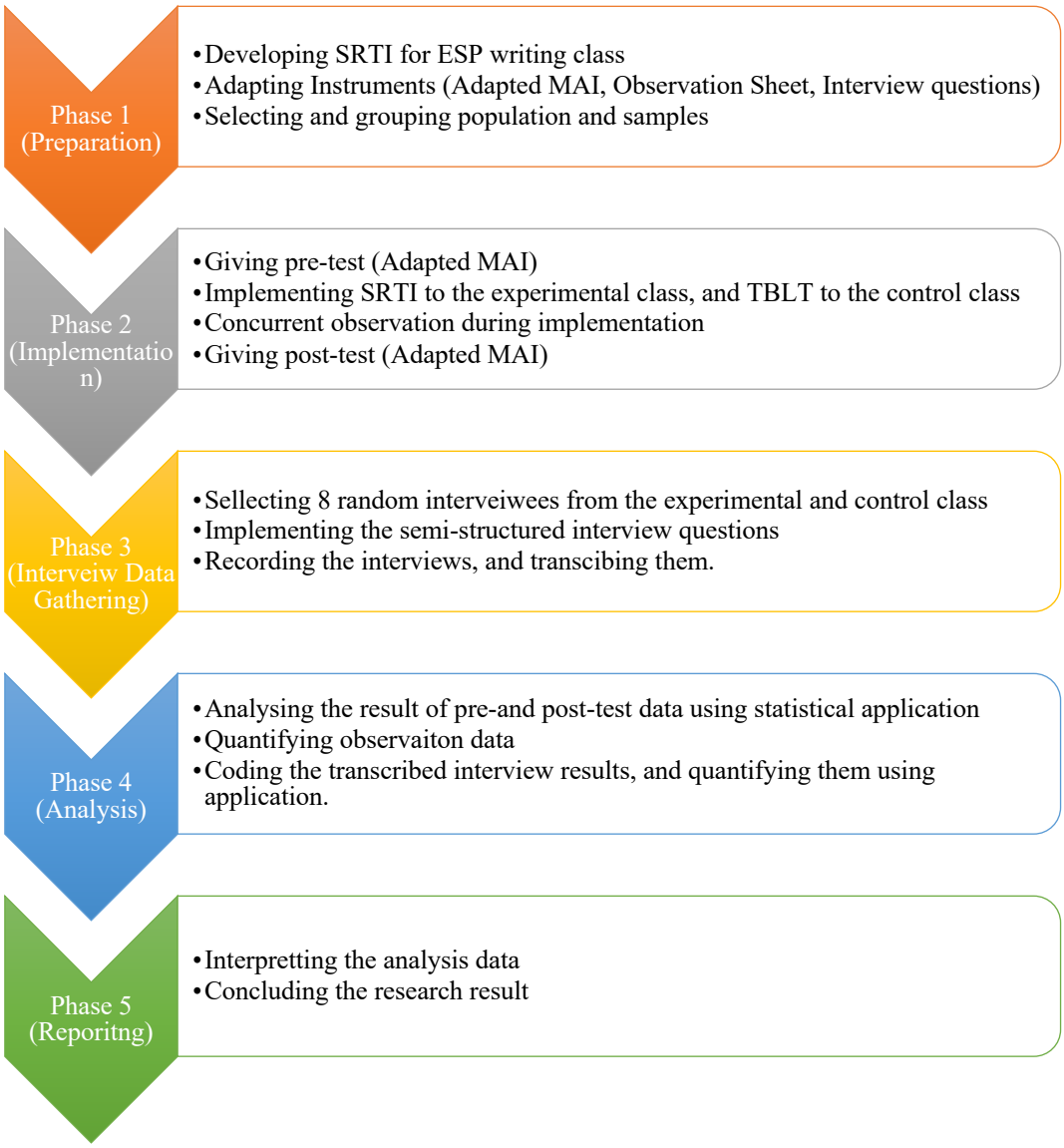

Figure 3. 4 The Procedural Phases of The Research

3.5. Data Analysis

This research adopted a convergent mixed-methods design, necessitating the application of distinct data analysis strategies for the quantitative and qualitative data collected. The following section elaborates on the specific analytical techniques employed for each data type.

3.5.1. Quantitative Data Analysis

To address the research questions and evaluate the effectiveness of the Self-Regulated Task Instruction (SRTI) model, a pre and post-test comparative group design was applied. This quasi-experimental design involved the implementation of the adopted Metacognitive Awareness Inventory (MAI) (described earlier) to

both the experimental and control classes at two distinct time points: prior to the intervention (pre-test) and upon its completion (post-test). This implementation allows for the assessment of potential changes in samples' metacognitive awareness attributable to the intervention within the experimental group while accounting for any pre-existing group differences.

To statistically evaluate the impact of the intervention, null and alternative hypotheses were formulated concerning the mean scores on the adopted MAI between the experimental and control classes at the post-test. The null hypothesis (H_0) posits that there will be no statistically significant difference in the mean scores between the two groups ($\mu_1 = \mu_2$). Conversely, the alternative hypothesis (H_1) predicts that there will be a statistically significant difference in the mean scores between the experimental and control groups ($\mu_1 \neq \mu_2$). The two-tailed alternative hypothesis can be specified based on the direction of the predicted effect (i.e., whether the intervention is expected to increase or decrease metacognitive awareness scores). A comprehensive explanation of the hypotheses and their implications for the research question can be provided in Table 3.2.

Table 3. 6 The Research Hypotheses

Type	Description
H_0 (*null-hypothesis*	There is no difference in the level of metacognitive awareness between students implementing SRTI as their tasking procedures and those implementing common TBLT tasking procedures.
H_1 (alternative hypothesis)	Students implementing SRTI as their tasking procedure have a higher level of metacognitive awareness that those implementing common TBLT tasking procedures.

The outcome of the hypothesis test will determine whether the null hypothesis can be retained or rejected. Here is an explanation of the two possibilities:

- **Retain the Null Hypothesis (H_0)/Reject the Alternative Hypothesis (H_1):** If the null hypothesis is not rejected, or the alternative hypothesis is rejected, it suggests that there is insufficient statistical evidence to conclude that SRTI has a significant impact on students' metacognitive awareness levels. In other words,

the observed differences in scores between the experimental and control groups could be attributed to chance or other extraneous factors.

- **Reject the Null Hypothesis (H_0)/ Retain the Alternative Hypothesis (H_1):** Conversely, if the null hypothesis is rejected, or the alternative hypothesis is accepted, it indicates that a statistically significant difference exists between the mean scores of the two groups. In this scenario, we can cautiously infer that the SRTI intervention may have played a role in promoting students' metacognitive awareness development. However, it is crucial to acknowledge that this approach only establishes a correlation, not necessarily causation. Further investigation may be required to definitively isolate the specific effects of SRTI from other potential influences.

Given the inherent limitations of a quasi-experimental design, where random assignment of participants to groups is not feasible, it is crucial to employ additional measures to strengthen the internal validity of the research findings. Internal validity refers to the extent to which the observed outcomes can be definitively attributed to the independent variable (SRTI in this case) and not extraneous factors. Thus, the pre-requirement tests were conducted before testing the hypothesis. Since this research employed a quasi-experimental design, to check the hypothesis, several procedure tests were conducted as follows:

3.5.1.1. The Requirement Tests

Prior to formally testing the hypothesized impact of Self-Regulated Task Instruction (SRTI) on samples' metacognitive awareness, it is essential to conduct normality testing and homogeneity of the variances to determine the underlying distribution of the data. This information is crucial for selecting the most appropriate statistical approach for hypothesis testing. Parametric tests, such as independent samples t-tests or ANOVAs, generally assume normality and homogeneity in the data distribution. However, if the data exhibit significant deviations from normality, non-parametric tests should be employed to ensure the reliability and generalizability of the findings (Kim, 2015).

Test of Normality. To determine the appropriate statistical approach for hypothesis testing, the normality of the pre-test data for both the control and

experimental classes was assessed. This is crucial because parametric tests, commonly used in hypothesis testing, assume an underlying normal distribution in the data. The Kolmogorov-Smirnov (K-S) test, a non-parametric test, was employed for this purpose. The K-S test is particularly well-suited for larger sample sizes (Field, 2013), as it does not rely on assumptions about the specific distribution of the population from which the samples were drawn.

The pre-test scores from both groups were imported into JASP for statistical analysis. Normality was evaluated using two primary methods:

Kolmogorov-*Smirnov Test*: The K-S test statistic and its associated significance level (p-value) will be obtained. A statistically non-significant p-value (typically greater than 0.05) suggests that the data are consistent with a normal distribution. Conversely, a significant p-value (less than 0.05) indicates a rejection of the null hypothesis of normality.

Visual Inspection: In addition to the K-S test, histograms and Q-Q plots were generated to visually assess the normality of the data distributions. These graphical representations can provide valuable insights into potential deviations from normality, even if the K-S test p-value falls within the non-significant range. Visual inspection allows us to identify patterns or skewness that might not be captured by the K-S test alone.

The outcome of the normality tests guides the selection of the appropriate statistical test for hypothesis testing. If the data are deemed normally distributed, parametric tests like the independent samples t-test can be utilised. However, if the data significantly deviate from normality, non-parametric tests such as the Mann-Whitney U test may be employed to ensure the robustness of the statistical analysis. Using the appropriate statistical test based on the data's distribution is essential for ensuring the reliability and generalizability of the findings.

Test of Homogeneity. While normality testing assesses the distribution of the data (often referring to normality), homogeneity of variance testing evaluates whether two or more groups have similar variances in their data. In this research, Levene's test, a variant of the chi-square test, was employed to assess the homogeneity of variance between the pre-test scores of the control and

experimental classes. Levene's test is a common choice for testing homogeneity, especially when the normality assumption for the data may not be met.

The Levene's test statistic and its associated p-value will be obtained from the analysis. A statistically non-significant p-value (typically greater than 0.05) suggests that there is no evidence of a statistically significant difference in the variances between the two groups. This would satisfy the homogeneity of variance assumption for further analysis using techniques like independent sample t-test.

However, if the Levene's test indicates a significant difference in variances (p-value less than 0.05), it suggests that the groups may have unequal variances. In such cases, alternative statistical tests that are more robust to violations of the homogeneity assumption, non-parametric test has to be conducted.

3.5.1.2. The Hypothesis Testing

The calculation of hypothesis testing depends on the result of normality and homogeneity test. If the data distribution is normal and homogenous, the parametric analysis is employed, and an independent sample *t*-test is used. Meanwhile, if the data are not normally distributed and heterogeny, non-parametric analysis is applied, and the Man Whitney Test is employed.

Both the independent sample t-test and the Mann-Whitney U test are statistical procedures used to compare the means of two independent classes. The independent sample t-test is appropriate if the data for the post-test scores in both groups are normally distributed. While Mann-Whitney U Test is employed when the data are not normally distributed or the variances are unequal. It is a distribution-free test, meaning it makes fewer assumptions about the data compared to the t-test.

When the significance level (alpha) is at 0.05, it indicates that a p-value less than 0.05 suggests a statistical difference between the control class and the experimental class. It leads to the rejection of the null hypothesis (which typically states that there is no difference between both classes). In contrast, a p-value greater than 0.05 indicates that the null hypothesis fails to be rejected, suggesting a lack of statistically significant evidence for a class difference.

While the statistically significant results from the independent samples t-test indicate that there are differences in both Knowledge of Cognition (KoC) and Regulation of Cognition (RoC) between the experimental and control groups, it is

essential to understand the practical significance of these differences. This is where effect size calculations come into play. Cohen's d, a standardized measure of effect size, was calculated for both KoC and RoC to assess the magnitude of the differences between the groups. This statistic provides a more interpretable measure of the intervention's impact compared to the raw mean differences. Cohen's d analysis is implemented to check the effect sizes for both KoC and RoC. Based on Cohen's guidelines (Cohen, 2013), the effect size result is categorised as small (d = 0.2), medium (d = 0.5), or large (d = 0.8), the calculated Cohen's d values for Knowledge of Cognition (KoC) and Regulation of Cognition (RoC) provide valuable insights into the practical significance of the SRTI intervention.

This research design utilizes both hypothesis testing (t-test or Mann-Whitney U test) and effect size calculation (Cohen's d) to provide a more comprehensive picture of the findings. Hypothesis testing establishes whether the observed difference between the control and experimental classes is statistically significant, while N-Gain quantifies the magnitude of the learning gain within the experimental group. This combination strengthens the research by not only identifying a difference but also demonstrating the practical significance of that difference.

3.5.2. Qualitative Data Analysis

This research combines a qualitative analysis alongside statistical testing to triangulate the findings and provide a more comprehensive understanding of the impact of Self-Regulated Task Instruction (SRTI) on samples' metacognitive awareness. Triangulation refers to the well-established research practice of employing multiple data collection and analysis methods to investigate the same phenomenon (Tobin & Begley, 2010). By strategically combining quantitative and qualitative approaches, researchers can gain a richer and more multifaceted picture of the research topic (Plewis & Mason, 2005). The qualitative data in this research include the result of observation, document analysis, and interview transcribes. A more comprehensive explanation of qualitative data analysis for this research is described as the following.

3.5.2.1. Classroom observation

Classroom observation was done concurrently during the implementation phase, phase 2 (see Figure 3.1). To examine the samples' interaction and overall

learning atmosphere in both experimental and control classes, direct, systematic observation was implemented. This data reveals how samples engage with Self-Regulated Task Instruction in the experimental class and common Task-Based Language Teaching in the control class. Further, this observation is expected also to reveal how this SRTI influences their learning processes (Creswell, 2021).

Following the introduction of project instructions to both the experimental and control classes, classroom observations were conducted using a standardized observation sheet (refer to Table 3.3 for details). This sheet likely outlines specific categories of student behaviors or interactions relevant to the research question about the impact of SRTI on metacognitive awareness.

A total of 89 observation sheets were collected for analysis. These sheets were evenly distributed across the two groups, with 45 sheets obtained from the experimental class and 44 from the control class. This balanced distribution allows for a more comprehensive comparison between the groups. For each category of behavior or interaction defined on the observation sheet, the frequency of its occurrence was calculated within each class (experimental and control). This calculation likely involved counting the number of times each behavior was observed throughout the observation period.

The final step involved comparing the calculated frequencies of observed behaviors between the experimental and control classes. This comparison aims to identify any significant differences in student behaviors or interactions that might be attributable to the SRTI intervention implemented in the experimental group. By analysing these differences, the researcher generate research findings and interpretations related to how SRTI might influence metacognitive awareness in the classroom setting.

3.5.2.2. Document Analysis

To assess the effectiveness of the Self-Regulated Task Instruction (SRTI) intervention in the experimental group, this research analysed both the instructional materials provided and student work samples generated during the project. The instructional materials developed for each project (survey, vlog, and tour book) were scrutinized to guarantee alignment with the principles of both SRTI tasking and Task-Based Language Teaching (TBLT) tasking. This analysis likely involved

creating a framework or checklist that outlined the key components of each approach using pre-defined themes (Braun & Clarke, 2012). For SRTI, the focus might have been on elements that encourage students to set goals, plan their learning strategies, monitor their progress, and reflect on their experiences. For TBLT, the focus might have been on features that promote real-world task completion, information exchange, and negotiation of meaning among students. By ensuring alignment with both frameworks, the research aimed to provide a consistent learning environment for both the experimental and control groups while still allowing for the potential impact of SRTI in the experimental group.

In addition to the instructional materials, student work samples associated with SRTI implementation were analysed. Two representative samples per project (survey, vlog, and tour book) were selected from both the experimental and control classes. The primary purpose of analysing these samples was to assess whether students in the experimental class incorporated the concept of self-regulated task instruction within their projects. By comparing the student work samples from both groups, the research aimed to identify any potential differences in how students approached their projects. A noticeable presence of self-regulation strategies in the experimental class's work would suggest that the SRTI intervention had a positive impact on their learning behaviors. This analysis of instructional materials and student work samples provides valuable insights into the implementation of SRTI and its potential influence on student learning within the experimental group.

3.5.2.3. Interview Transcripts

Following the implementation phase, as mentioned earlier (see Figure 3.1), semi-structured interviews were conducted with eight participants. This section details the process of analysing the interview data to extract meaningful insights. Thematic content analysis, a deductive method, was employed to analyse the interview transcripts. In contrast to inductive approaches where themes emerge from the data, this method utilizes predetermined themes established beforehand (Anderson, 2007). These themes likely originated from the probe questions outlined in section 3.3.4. The probe questions likely focused on specific aspects of the research question, such as students' experiences with SRTI, the perceived effectiveness of the intervention, or any challenges encountered.

Braun and Clarke (2012) thematic analysis was applied to analyse the interview result. It aimed to discover recurring patterns across the interview data set. By analysing the transcripts through the lens of the predetermined themes, researchers sought to identify common experiences, perspectives, or challenges expressed by the interviewees. This approach reveals the "collective voice" of the participants, providing valuable insights into how students responded to the SRTI intervention.

To streamline the analysis process and enhance data organization, the NVIVO qualitative data analysis software was utilized. This software allows researchers to code interview transcripts based on predetermined themes, facilitating the identification of patterns and the generation of meaningful summaries. By employing thematic content analysis with NVIVO, the research can efficiently extract valuable insights from the interview data, providing a deeper understanding of student experiences with the SRTI intervention.

3.6. Ethical Considerations

This research employs a purposive sampling strategy to select participants, focusing on students and lecturers directly involved with the implementation of Self-Regulated Task Instruction (SRTI). This targeted approach ensures that participants have firsthand experience with the intervention, leading to richer and more relevant data.

To safeguard participant autonomy and ensure ethical research conduct, this research utilise informed consent procedures. All potential participants were provided with an informed consent form. This form includes a clear and concise description of the research objectives, the estimated time commitment involved, and contact information for the researchers. Most importantly, the form will explicitly state the participants' right to withdraw from the study at any point without consequence. The form can be seen in the Appendix 5.

By presenting the informed consent form, the research team aims to ensure that participants make an informed decision about their involvement. They should feel empowered to participate only if they feel comfortable doing so and understand the nature of the research. Pressure or coercion of any kind will be strictly avoided.

This research prioritizes participant privacy and upholds the ethical principle of confidentiality. All measures will be taken to ensure that no personal identifying information (credentials, names, etc.) of the participants will be disseminated or shared without their explicit consent. Pseudonyms or codes can be used to anonymize the data during analysis and reporting. These measures, including purposive sampling, informed consent, and protection of participant privacy, demonstrate the research team's commitment to ethical research practices. By prioritizing participant autonomy, well-being, and confidentiality, the research fosters trust and ensures the validity and integrity of the collected data.

3.7. Limitation of The Methodology

This study employed a mixed methods approach, utilizing a quasi-experimental design and thematic analysis. Despite efforts to optimize research conditions, several limitations emerged.

Firstly, integrating quantitative and qualitative data proved to be a challenging endeavour, necessitating substantial time and effort. While the quantitative data analysis relied on applications to minimize subjectivity, the qualitative data analysis, particularly thematic analysis, was inherently subjective. The identification and interpretation of themes were influenced by the researcher’s perspectives, despite efforts to mitigate this through the utilization of predefined themes.

Secondly, the quasi-experimental design presented limitations. The absence of random assignment to treatment and control groups heightened the risk of selection bias, wherein pre-existing differences between groups could potentially confound the results. Furthermore, internal validity threats, such as history effects (unforeseen events) and maturation effects (natural changes within participants), could have potentially influenced the outcomes.

Finally, the thematic analysis itself entailed inherent subjectivity. Different researchers may identify and interpret themes differently, even when employing predefined themes. While efforts were made to minimize subjectivity, the risk of over-interpretation and imposing researcher biases on the data persisted.