

CHAPTER 3: METHODOLOGY

This chapter begins its description on the methodology by addressing the research design and researcher's area of bias. Setting, participants, and instruments are subsequently discussed. After describing procedure of data collection and analysis, this chapter concludes with a summary of methodology.

3.1. Research Design

This study employed an evaluative case-study design (Yin 2009:19). This design was selected due to its suitability to “describe an intervention and the real-life context in which it occurred” (ibid:20). Evaluative case study is also useful to explain the presumed causal links in the real-life interventions between variables (e.g., treatment and intervention outcomes) which are “too complex for survey or experimental strategies” (ibid:19).

Correspondingly, the treatment or intervention in this study was three sessions of differentiated reading activities (DRA), each was devised by adapting to different combinations of learning style based on the Index of Learning Style model (ILS). The efficacy of DRA as a classroom practice to promote reading task engagement was evaluated in its real-life context within three EFL reading classrooms of an engineering college. Self-selection logs, observation sheet, and comprehension test were the instruments used to investigate students' reading task engagement, and these instruments were trialed to enhance its validity. Students' reading task engagement were assessed through students' affective, behavioral,

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and cognitive responses (A-B-C responses) during DRA interventions. The researcher also serves as an instrument to analyze the A-B-C responses, and validity of findings were sought by applying several measures including triangulating data, search for discrepant evidence, and quasi-statistics.

3.2. Researcher and the Areas of Bias

The researcher is a lecturer at Institut Teknologi Telkom, Bandung, where she has been teaching English for engineering students for ten years. The researcher is familiar with instructional demand of ESP in engineering area, and the challenges faced by her students to become skilled at reading engineering texts. Enthusiastic about facilitating students to be more engaged in reading, the researcher conducted an evaluative case-study design in one engineering college in Bandung. The researcher selected an institution other than her current affiliation as an attempt to maintain her objectivity in conducting the study.

The researcher assumed roles as activity developer, instructor, observer, and rater, through which she brought several areas of bias to this study. First and perhaps most importantly, the researcher brings her own learning style i.e. REF-1, INT-3, VIS-1, GLO-5 (mildly reflective-intuitive-visual, and moderately global). To some degree, this influenced her way of developing activities, delivering instruction, observing classroom situation, and assessing the reading activities. This bias was systematically reduced particularly on the development and assessment parts of this study, by inviting two external points of views. First was from educational psychologist, concerning the design of reading activity so that

they could be equally meaningful and fairly attractive to all learners. Second was from other raters, concerning the assessment of the comprehension test.

The second bias is that the researcher is not the leading instructor in the classes that could have possibly affected her interaction with the participants, and might have influenced the way students perceive her and her instruction in class. Students might respond more enthusiastically than their usual responses, or conversely give less importance to the activities given by the researcher since the activities were not bearing points to their final assessment. This bias had been minimized by appearing in few sessions prior to intervention, allowing students to interact more with the researcher. Researcher also reminded herself to stay alert to her own subjectivity and constantly examine herself for biases throughout the study by referring to multiple sources of data to counteract this limitation.

In retrospect, there were two major measures that could not be implemented in this research. First was inviting other researcher to the classroom and second was conducting post-research interview to confirm the finding from self-report and observation. To compensate the first deficiency, this study managed to videotape reading activities in order to maintain objectivity. Regarding the second, the researcher employed multiple self-reports to provide confirmation toward findings.

3.3. Setting

The study took place in one polytechnics in Bandung, where grammar and reading skills were taught to students in their second semester. The polytechnics offers

three vocational programs at D-3 level – a level in Indonesian education system

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below bachelor degree, typically accomplished in three years. The vocational programs were related to information and communication technology: computer engineering (CE), computerized accounting (CA), and information system (IS).

Selection of site was made by reflecting on two factors. To begin with, one instrument namely ILS was originally designed to capture the LS of engineering students (Felder & Silverman, Learning and Teaching Styles in Engineering Education, 1998). Secondly, the polytechnics has given greater attention to English proficiency in its curriculum, indicated at least by the inclusion of English courses in four consecutive semesters, and the requirement of taking English proficiency test prior to graduation. Selecting an institution that has evident enthusiasm toward improving English skills has facilitated the study with the institution's confidence on the research, and the wider opportunity of disseminating relevant benefits to the institution upon the completion of study.

3.4. Participants

Three participating classes were purposively selected from 29 EFL reading classes during even semester 2010, one from each major. Few students were ruled out by the institution due to low attendance, thus the three participating class contained 96 active students in three classes: 29 students of CE-05, 32 students of IS-04, and 35 students of CA-02. In total they were 53 males and 43 females, aged between 18-20 years of age. After deleting students with missing values, the final sample contained 54 students, yielding the response rate as much as 56.3 percent.

Table 0.1. Summary of Sample

Class	Registered students	Active students	Taking ILS	Participating in 3x DRAs	Taking Reading test	Valid Responses (no missing values)
CE-05	38	29	25	28	29	25
IS-04	40	32	23	26	28	18
CA-02	37	35	23	32	26	11
Total	105	96	71	86	83	54
Response rate			74%	89.6%	86.5%	56.3%

3.5. Instruments

Five instruments were employed in this study to answer two research questions. With regard to the first question, i.e. whether students' self-selections to the LS-differentiated reading activities compatible with their LS, two instruments were used: (i) Index of Learning Style Questionnaire and (ii) Differentiated Reading Activities. Meanwhile, to investigate the second research question, i.e. how compatible/incompatible self-selections of reading activities help students engage to reading task, there other instruments were used. They were (iii) Self-selection Logs, (iv) Observation Sheet and (v) Comprehension test. Each was intended to investigate students' affective, behavioral, and cognitive responses, respectively.

3.5.1. Index of Learning Style Questionnaire

To portray students' learning style (LS) and correspondingly answer the first research question, Index of Learning Style questionnaire (ILS) was used (Appendix A). Felder & Soloman constructed ILS in 1991 from a learning model that was previously developed by Felder & Silverman in 1987. Analysis of psychometric properties of the ILS, including the test-retest reliability, factor structure, internal reliability, total item correlation, inter-scale correlation, and construct validity were discussed in the Felder & Soloman's study (2001) based

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on the scores for 557 valid questionnaires of engineering students. In summary, the author supports conclusions found in the literature and points to the ILS as a suitable psychometric tool for evaluating LSs of engineering students.

There are at least three reasons for supporting the use of ILS in this study. First, as stated above, ILS was developed from a learning model of engineering students thus justifying its administration on the participants in this study. Second, scholars have tested the validity of this instrument including Van Zwanenberg et al. (2000), Livesay et al. (2002), Zywno (2003), Felder & Spurlin (2005) and Litzinger et al. (2005). One study by Livesay et al. reports the alpha to be in the range of 0.54 to 0.72 and they found relatively high test-retest reliability in repeated measurements over time (2002). Third, unlike many of other LS questionnaires, ILS is available on the internet for non-business use, and returns immediate result at no cost. Since its launch on the World Wide Web in 1996, ILS gets nearly a million hits per year and has been translated into several languages (Felder, 2001).

To help the participants do ILS survey on the Internet, the researcher provided hard copy of the Indonesian translation (Appendix B). This translated version of ILS was put on trial to 22 language lab assistants in the researcher's institution, and the assistants found it useful in assisting them to understand the questions properly. It also increased their confidence in completing the survey.

In brief, ILS portrays learning style in four dimensions of continuum: information processing (active/reflective, abbreviated as ACT-REF), perception

(sensing/intuitive, or SEN-INT), modality input (visual/verbal, or VIS-VRB), and progress toward understanding (sequential/global, or SEQ-GLO). The ILS scales are bipolar, 44 forced-choice item that yields answer either (a) or (b). Since there are 11 numbers of items each on the four scales, scored as +1 and -1, the total score on a scale from -11 to +11 shows an emerging preference for the given dimension. Scores for each continuum are the complement of 11. Consequently, a person who gives 6 answers for reflective processing means she gives 5 answers for active processing. The difference is 1 favoring reflective processing, and thus reported in the ILS result as a cross above the REF scale as shown in Figure 3.1.

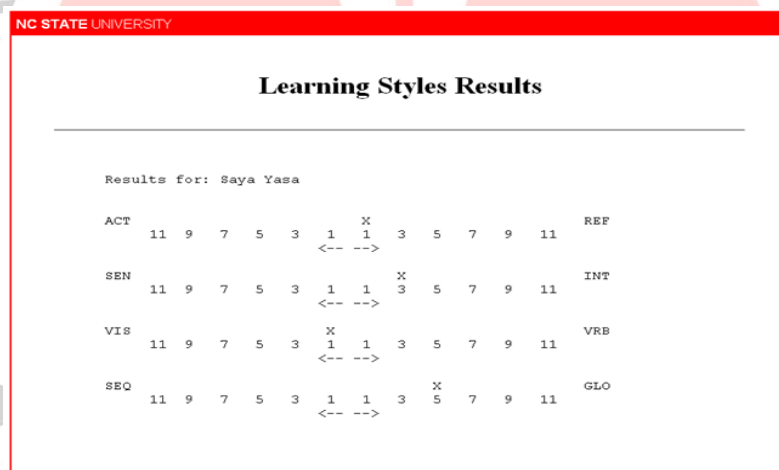


Figure 0.1. Sample of ILS Result

3.5.2. LS-Differentiated Reading Activities

The host institution provided a courseware for grammar-reading ESP course for their second-semester students. With regard to the compulsory reading materials presented on Unit 7, 8, and 12 of the courseware, the researcher developed four different reading activities for each unit. Each of these four activities represented

different combination of LS in 2x2 matrix, with the sensing-intuitive dimension as its main axis and three other dimensions modify it. The explanation below justify the use of sensing-intuition as the main axis, the making of twelve activities based on DI philosophy, and the validation of instrument. The corresponding model of LS-combination used in differentiating reading activities is depicted in Figure 3.2.

Sensing-intuition (SEN-INT) is used as the main axis because psychology experts and practitioners believe this dimension “represents the greatest differences between people since it really influences one's worldview” (Tieger & Barron-Tieger, 2000). It functions as “filtering system” (Quixote Consulting, 2010) and is said to be one of the keys to satisfaction at any kinds of occupation (Alvey, 2010). A study by Tieger & Barron-Tieger in the field of law vividly demonstrates the fundamental influence of this dimension, and the authors suggest that differences also may be recognized as early as on children (2000).

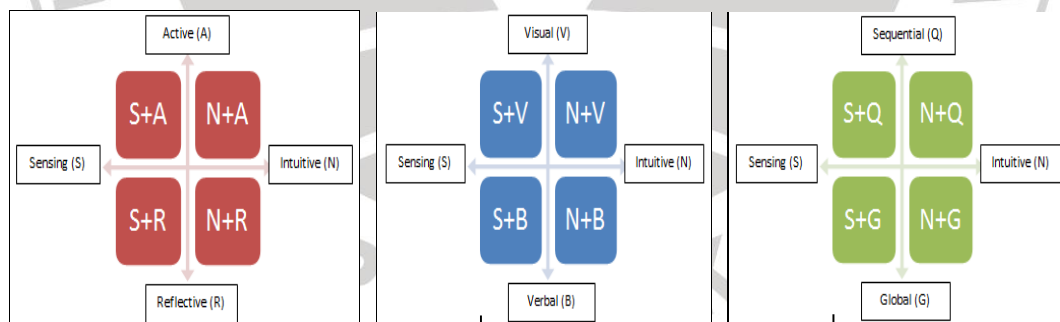


Figure 0.2. Matrix of LS Combination for Differentiating Reading Activities

While applying SEN-INT axis to the reading activities, the content area was maintained. The texts for reading instructions were used at their original level of difficulty and readability (Appendix C). A total of twelve reading activities

were developed on the targeted Unit 7, 8, and 12. Differentiation was offered in the form of differentiated process (i.e. Unit 7, through different word games), differentiated product (i.e. Unit 8, through different drawings and stories), and differentiated content (i.e. Unit 12, through different sub-topics from one longer text). Graded ability was introduced – known in DI philosophy as ‘readiness’. Unit 7 offered activities at word level, making use a set of the newly introduced vocabularies into active or reflective word games. Unit 8 presented activities at phrase level, applying bigger chunks of expression in visual or verbal products. In Unit 12, students were invited to interact with text at paragraph level, discussing sequential or global topics of a text. This way, the twelve reading activities has justifiably applied key principles of DI. Further, to minimize possibility that students choose only certain type of activity or certain corner of the class, these activities were offered in slightly different order. This counterbalances the effect of sensitization toward certain types of activity or certain position of groups.

To confirm the valid interpretation of styles into reading activities, researcher took two measures: conducting trials and consulting with educational psychologist. In three trials, the twelve activities were offered to classes in the research site that did not participate in the study. Students were asked to quickly self-select to one of four reading activities at a time. The activities and trial results were discussed with an educational psychologist in researcher’s institution (Appendix D). Several adjustments added after trial and consultation include:

- i. the use of identical color on each display of differentiated-activities matrix (see Figure 3.4.). Some students reported they self-selected to an activity because they like one color better than the other.

- ii. the use of 60-second spirited music to encourage students physically self-select into the differentiated activities in just 1 minute. Self-selections may take up longer when students were undecided, and ended up accepting their friends' choice rather than following what interested them on the first place.
- iii. the inclusion of more physical and manipulative activities for active learners (S+A and N+A). Due to the nature of reading itself as a reflective activity, and perhaps the researcher's mild propensity to reflective thinking, that the previous version of first differentiated reading activities (DRA-1) were more introspective than physical.

Table 0.2. Reading Activities Differentiated by Felder-Soloman's ILS

Sensing (S)	Intuitive (N)	Legend:	
<ul style="list-style-type: none"> * Working with five senses; keen at concrete information, e.g. numbers, how-tos, rules, definition; accept repetition. * Looking for facts. 	<ul style="list-style-type: none"> * Working with interpretations; keen at conceptual info, e.g. analogies, innovation, experiences, possibilities; accept complication. * Looking for meaning. 	<ul style="list-style-type: none"> DRA-1, text unit 7 DRA-2, text unit 8 DRA-3, text unit 12 <p>DRA = Differentiated Reading Activities</p>	
S+A : Guessing game with vocabulary cards, by finding its definition from the text and explaining it as a hint to the group. Loud from using repetitive physical activity in prompting and guessing. Rewards with score.	N+A : Puzzle game by choosing the right answer from the context of the text to solve the puzzle. Loud from discussing possibilities and manipulating puzzle. The puzzle rewards with a praise at the back of the puzzle.	<ul style="list-style-type: none"> * Prefer to learn by trying, do physical experiments, like to manipulate objects. * Enjoy working in groups to figure out problems 	Active (A)
S+R : Building sentences with as many vocab cards as possible, and adding words in the gap. Finding its definition from the text; and using more cards to obtain greater scores	N+R : Classifying words and give umbrella title that reflects a new idea. Find the meaning of the words from the text, and innovate new contexts for the words.	<ul style="list-style-type: none"> * Prefer thinking through before doing, like to evaluate options, and learn by analysis. * Enjoy figuring out problem on their own 	Reflective (R)
S+V : Completing blanks in a flowchart. Identifying a process/procedure from the text, and work with phrases and their related pictures.	N+V : Drawing a picture making use of cards of phrases/idioms. Create an analogy where the all the cards can fit.	<ul style="list-style-type: none"> * Prefer graphs, pictures, diagrams. * Look for visual representation of information. 	Visual (V)
S+B : Finding misplaced explanation. Identifying a process/procedure from the text, and fixing the wrong phrases in the flowchart.	N+B : Creating story with cards of phrases/idioms. Experience a customizable story about a topic by fitting in all the cards into the story	<ul style="list-style-type: none"> * Prefer to hear or read information. * Look for explanation of information. 	Verbal (B)

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<p>S+Q : annotating a few paragraphs by asking, answering, and commenting to friends' annotations.</p> <p>Topic: parts of i-Pod (its accessories).</p> <p>The annotations go around in the group for receiving responses from all members</p>	<p>N+Q : annotating a few paragraphs by asking, answering, and commenting to friends' annotations.</p> <p>Topic: steps of i-Pod innovation.</p> <p>The annotations go around in the group for receiving responses from all members</p>	<ul style="list-style-type: none"> * Prefer to have information presented in an orderly manner * Learn/do in small connected chunks and follow linear connection. * Put together the details in order to understand the big picture. 	Sequential (Q)
<p>S+G : annotating a few paragraphs by asking, answering, and commenting to friends' annotations.</p> <p>Topic: all about current i-Pod</p> <p>The annotations go around in the group for receiving responses from all members</p>	<p>N+G : annotating a few paragraphs by asking, answering, and commenting to friends' annotations.</p> <p>Topic: global i-Pod ahead.</p> <p>The annotations go around in the group for receiving responses from all members</p>	<ul style="list-style-type: none"> * Prefer holistic approach. * Learn/do in large jumps in order to get the big picture. * See the big picture first then systematically can see the details 	Global (G)

3.5.3. Self-selection Logs

To record how students self-select to the differentiated reading activities (henceforth is DRA), the researcher devise a self-report introduced to participants as 'Grouping Log'. The term was intentionally chosen as it was more readily understood than term 'LS-Differentiated Reading Activities Log'. This instrument was designed to be simple but versatile, with its ability to capture multi-aspects of students responses including affective, behavioral, and cognitive responses.

The log took the form of semi open-ended self-report, and has four parts: personal data, the 1st DRA experience, the 2nd DRA experience, and the 3rd DRA experience (Appendix E). For personal data, students were asked to record their name, birth year, class, hobby they do on their own, and hobby they do with friends. These hobbies could give preview on how students were personally and collectively engaged. Throughout all DRA experiences, each log consistently tapped four information can be categorized into the 'what', 'why', 'how-mood',

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and ‘how-worth’ of the chosen DRA. Related to the research questions, these four information respectively elicited students’ ‘self-selection’, ‘behavioral response’, ‘affective response’, and ‘cognitive response’. They were translated into four queries: (i) what group they chose that week (A, B, C, or D); (ii) the most influential reason for choosing (the activity, friends, seating position, miscellany); (iii) their feeling after choosing the group (content, discontent, wanted to move to other group, neutral); and (iv) whether they think the chosen activity help them with the reading material (yes, no, neutral). Students were also asked to elicit brief explanation on their chosen answer. This log was trialed along with the DRA with sufficiently good result, thus no adjustment was added except converting the log from English into *Bahasa*. This log was considered a useful and authentic source of engagement responses, and is presented in concise form for participants’ benefit.

3.5.4. Observation Sheet

The observation sheet was developed by the researcher to capture students’ behavior as they interact with text, peers, and instructor (i.e. the researcher). This was another versatile instrument as affective and cognitive responses can be well captured while observing the behavioral responses. This instrument tapped students’ engagement in three phases of differentiated reading activities (DRA): the beginning, middle, and end. Each of the phases was back-up by videotaped recording to enable extra observation and further reference after the class.

In the beginning, the researcher as participant observer documented 4-minute classroom behavior. The classroom situation was also videotaped in the

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middle phase, in which 2-minute observation was dedicated to each group. Last, another 4-minute classroom behavior concluded the observation. The observed behavior were coded into A (affective), B (behavioral), C (cognitive), and D (disaffection). The observation sheet was trialed concurrently with the DRA and self-selection log. The trial results were satisfactory, and only layout modification – from 2-page sheet into just one page – was made to the sheet (Appendix F).

3.5.5. Comprehension Test

The development of comprehension test in this study was a challenging process. On the onset, 5 true-false and 5 multiple-choice questions on Unit 7-8 were trialed to a class of 35 students, yielding reliability as low as 0.32. Then revision was made and the second version of comprehension test, in the form of 10 multiple-choice items, was trialed to another class of 37 students. This resulted in greater alpha of 0.62 (Appendix G). This second version of comprehension test was administered to the three participating classes after completing all DRAs; with 5 open-ended questions on Unit 9 were added to the comprehension test. The results of multiple-choice tests were inconsistent between classes, yielding an alpha range of -0.39 in CE-05 class and 0.74 in CA-02 (Appendix G). As Litzinger et al. (2007) pointed out that reliability is a characteristic measurement of the specific sample, it was most likely that some samples were not under proper condition during the test thus resulting in greater measurement errors. Since deletion of few items could not significantly improve the negative reliability, the researcher decided to discard the multiple-choice comprehension test altogether, and considered the use of only the open-ended questions.

Correspondingly, it was imperative to confirm the reliability of the open-ended questions (Appendix H), due to the fact that the study did not afford a trial on them prior to administration. Therefore, after administering comprehension test in three classes, 30 random samples were put under three-rater's scrutiny. The researcher purposively selected two host instructors as co-raters: one instructor with indications as a sensing teacher, and one with characteristics as an intuitive teacher. The inter-rater reliability on the open-ended comprehension test were as high as 0.86 between the researcher and the presumably-intuitive instructor, and 0.79 between the researcher and the presumably-sensing instructor (Table 3.3). The ILS taken by the raters confirmed the presumed LS of both co-raters, proven by scales of ACT-5, SEN-7, VIS-9, GLO-3 for the sensing instructor, and REF-5, INT-3, VRB-3, GLO-1 for the intuitive instructor. With the researcher herself scaled at REF-1, INT-3, VIS-1, GLO-5, it was evident the three raters shared global-holistic point of view, yet more contrast on the sensing-intuition scale.

Since only the researcher who would rate the comprehension tests of the remaining 53 participants, then an adjustment on the inter-rater reliability coefficient must be made. Fan & Chen (2000) point out how Spearman Brown prophecy formula can be modified to yield the correct coefficient when inter-rater reliability is obtained from only part of a sample. The Spearman Brown prophecy

is written as: $r_{test} = \frac{(n * r_{obs})}{1 + (n - 1) * r_{obs}}$ and modified into $r_{test} = \frac{(0.5 * r_{obs})}{1 + (0.5 - 1) * r_{obs}}$

where n is 0.5 if part of the sample is rated by two raters, 0.33 if it was rated by 3 raters, and so on (Fan & Chen, 2000). The Pearson correlation matrix and the

corrected inter-rater reliability coefficient were calculated using statistical package in Excel, and the results are displayed in Table 3.3.

Table 0.3 Pearson correlation matrix and the corrected inter-rater reliability

Pearson matrix	Researcher	Sensing rater	Intuitive rater
Researcher	1	0.79	0.86
Sensing rater		1	0.72
Intuitive rater			1

z transform	Researcher	Sensing rater	Intuitive rater
Researcher		1.071	1.293
Sensing rater			0.908
Intuitive rater			

Fisher Z transformation average	1.028
Pearson correlation for 3 raters	0.77
Corrected coefficient (Fan & Chen, 2000)	
Researcher & Sensing rater	0.65
Researcher & Intuitive rater	0.76

It became evident that LS, most likely the sensing-intuition dimension (Tieger & Barron-Tieger, 2000), could have significant influence on the way raters take in information during assessment. Without considering this SEN-INT propensity of raters, this study could have overestimated or underestimated its inter-rater reliability. At Fleiss (1981) benchmark scale, the 0.65 agreement between researcher and her sensing counterpart fell under the category of ‘intermediate to good’, while the 0.76 agreement between the researcher and her intuitive counterpart was considered ‘excellent’. However, under Landis & Koch (1977) interpretation, both were deemed ‘substantial’ (in Gwet, 2010).

The open-ended questions were introduced to students as ‘*esai kreatif*’ (creative essay). The term here was meant in Indonesian sense in which *esai* normally refers to open-ended question, as opposed to multiple-choice, rather than in English sense of short written article. As the name suggested, students were invited to exercise creativity in answering the four questions. Students’ LS can also be reflected their responses, as question #11 demanded recall of items that

avored sensing learning, #12 asked for comprehending and analyzing implied relationship that favored intuition, and #13-14 of synthesis and application favored both sensing and intuition. Similar to the principles of main and auxiliary dimension, all the four questions gives the opportunities for students to respond in varied degrees of active-reflective thinking, visual-verbal mode, and sequential-global progression. Some of the samples responses are accessible in Appendix I.

3.6. Procedure

With regard to data collection and data interpretation in qualitative study, Maxwell (1998) proposes seven measures to enhance their validity. Included in the list are intensive and long-term involvement, rich data, respondent validation, search for discrepant evidence and negative cases, triangulation, quasi-statistics, and comparison (ibid: 243-245). With regard to this study, the last five measures were applicable i.e. respondent validation, search for discrepant evidence and negative cases, triangulation, quasi-statistics, and comparison. Enhancing validity from intensive and long-time involvement was not feasible since this study was conducted only in four weeks, each lasted in 40-50 minutes. Although the instruments used in this study were capable of capturing varied data, but the limited length of study and the absence of in-depth interview had limited the researcher from obtaining what Maxwell defines as 'rich data'(ibid: 244).

Despite the limited length of study and the absence of interview, this study could enhance its validity through five measures. First, respondent validation was obtained through self-reports administered in three occasions, i.e. DRA-1, DRA-2,

and DRA-3. Second, discrepant evidence and negative cases were analyzed by searching for unusual responses. Third, using multiple sources of data from five instruments, triangulation was conducted. Fourth, since most data were coded into categories, quasi-statistics was also feasible. Maxwell justifies the use of quasi-statistics as this allows researcher to support her claim and to assess the *amount* of evidence in data (Maxwell, 1998; 2010). Last, although explicit comparison is usually made through control group, this study made comparisons between sub-groups of compatible and incompatible self-selection, as well as between sub-group of students who responded positively and negatively to DRA.

3.6.1. Procedure for Collecting Data

The earliest phase of data collection began with 2-3 weeks of sit-in phase. This was conducted in three participating classes to familiarize with the students, the class situation, and the instructors of the class. Institutional consent was formally sought at this phase. The sit-in phase was important mainly because the study would take a half of the instructional time for administering the DRA interventions, thus the cooperation from the host instructor were sought, informally. Observing how students interacted with the text, peers, and instructors also gave preview on dynamics in each respected class. In this sit-in weeks the instruments were gradually trialed to other classes and revised accordingly.

A week before treatment, the researcher was introduced by the host instructor in classes as a visitor-instructor who would teach reading using LS games. In this occasion, ILS questionnaire was introduced. Handling them with

the translated version of ILS, the researcher showed students how to do the questionnaire on the internet and email the result to the researcher.

During the three weeks of DRA intervention, the host instructor taught grammar in the first half of instructional time and the second half was delegated to the researcher for reading instruction. The researcher stayed in the class during grammar instruction. When the reading instruction commenced, few host instructors stayed to observe the DRA; but in most cases, the class was fully entrusted to the researcher. The first 15 minutes of the reading instruction was typically stated with pre-reading activity to activate background knowledge on the topic. The next 25-30 minute was for students to self-select into groups and doing the reading activities. At this time the researcher observed the group behavior for engagement. Class was concluded with 5-minute wrap-up where students submitted their work and filled in the self-selection log.

Table 0.4. The Summary of Data Collection Stages and Instruments

#	Instrument	Description	Reliability	Types of Data
1	ILS questionnaire	44 forced-choice items	0.54 to 0.72 (Livesay et al.)	Coded scale
2	LS-differentiated reading activities	4 forced-choice activity for reading, designed by combining LS dimensions	Trial, psychologist consultation	Sample works
	Self-selection Log	Self-report of 1 close-ended prompt & 3 semi open-ended prompts	Trial, no revision	Coded Frequency Brief account
	Observation sheet	Observations on beginning-middle-end of activity for engagement response	Trial, layout revision	Coded Frequency Brief account
3	Comprehension test	4 open-ended questions, and 1 open-ended survey	0.65 to 0.76 (LS inter-rater)	Score Brief account
1 = Pre-intervention		2 = On-intervention	3 = Post-intervention	

After DRA intervention weeks passed, the comprehension test was administered, again at the end of an English session. Students who had not sent the ILS were offered to do the survey using the Indonesian version from which the researcher later input the answer on the Internet and recorded the result. Participant consents (Appendix J) were also sought formally at this phase.

3.6.2. Procedure for Analyzing Data

Qualitative data analysis that involves four steps according to Ryan & Bernard (2003). They are (i) discovering themes and subthemes, (ii) sorting themes to a manageable few, by deciding which themes are important in this study, (iii) building hierarchies of themes, and (iv) linking themes into theoretical models. The first step was the most important since, as Ryan & Bernard put it, “without thematic categories, investigators have nothing to describe, nothing to compare, and nothing to explain.” (2003; 86). The authors point out that themes are discoverable in expression found in texts, images, or sounds. Classification is discovered when concepts are compared one against another and appear to pertain to a similar phenomenon. Therefore, the concepts are grouped together under a higher order, more abstract concept called a category (Strauss and Corbin, 1990; 61, in Ryan & Bernard, 2003).

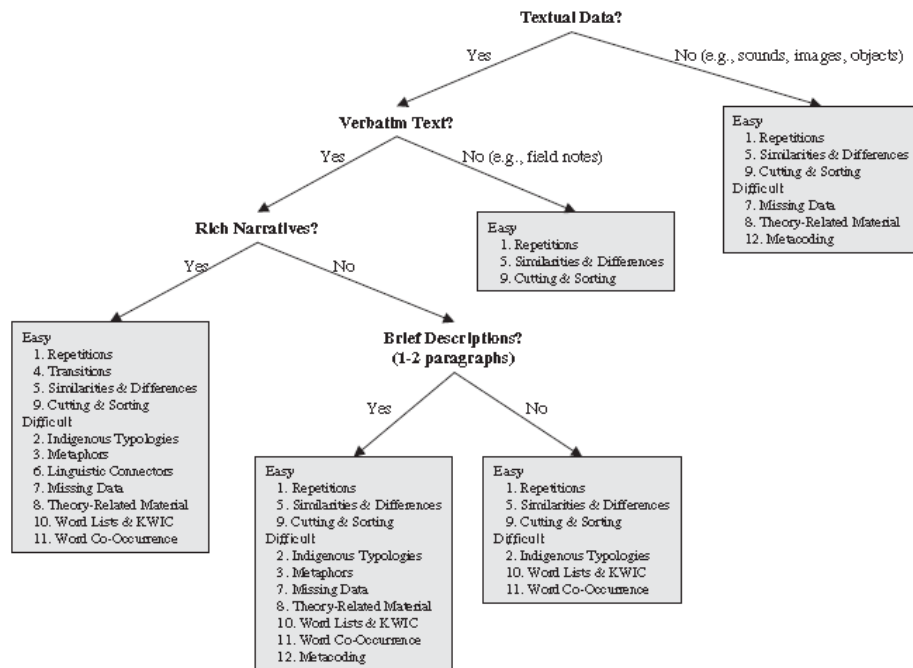
Following qualitative analysis method from Ryan & Bernard (2003), the present study employed indigenous themes typologies with theory-related analysis. Indigenous themes are themes that characterize the experience of informants. This involves examining the setting and context, the perspectives of the informants, and informants’ ways of thinking about people, objects, processes,

activities, events, and relationships (ibid.; 93 citing Bogdan & Biklen (1982:156–62).

Ryan & Bernard (2003) indicate that there is an inevitable trade-off between bringing a lot of prior theorizing to the theme-identification effort and going at it fresh. The authors see prior theorizing as potentially inhibiting the forming of fresh ideas and the making of surprising connections. Persistent avoidance of theory, on the other hand, brings the risk of not making the connection between data and important research questions (ibid; 94). Therefore, the current study sought the balance between the indigenous theme identification (i.e. students responses) and the theory (i.e. learning task engagement theories).

Regarding the techniques for analyzing themes, this study employed a technique suggested by Ryan & Bernard for identification of brief description of 1-2 sentences. These include repetition, similarities and differences, keywords in context and indigenous typologies (Figure 3.3). Cutting and sorting are mostly not necessary as the data from the students were normally short expressions.

Selecting among Theme-Identification Techniques



NOTE: KWIC = key words in context.

Figure 0.3. Theme-Identification Techniques (Ryan & Bernard, 2003;102)

Summary of Methodology

This evaluative case study is explanatory in nature. Researcher, setting, participants and instruments have been discussed and appropriately justified. Five instruments were selected based on theoretical considerations and properly tested for its validity and reliability. Research validity was enhanced through five measures. Data gathered in this study were managed in Excel sheet database, and quasi-statistics was conducted using Anates V.5 and statistical package in Excel.

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