Enhancing Writing Ability through Multiple-Intelligence Strategies

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ABSTRACT

This quasi-experimental research investigates how multiple-intelligence strategies and instructions can be used to improve the writing ability of students. The experimental group was taught the five multiple intelligences related to writing: verbal-linguistic, logical-mathematical, visual-spatial, interpersonal and intrapersonal. Students were also taught the five multiple-intelligence strategies related to writing which were brainstorming, topic-word association, rank ordering, mind-mapping, and metacognition. Both the experimental and the control groups were given two compositions: a narrative and an expository. After two months of training they were given a posttest to find out whether there was any significant difference in the writing ability of students. Writing ability was measured based on the Six-Trait Analytic Writing Rubric. Paired Sample T-Test, ANOVA, and MANOVA were used to analyze the data collected. Significant improvement is seen in the overall writing ability of students and also in the six traits analyzed after two months of training.

Keywords: Multiple intelligences, writing ability, narrative and expository compositions, Six-Trait Analytic Writing Rubric

INTRODUCTION

Malaysian schools are basically exam-oriented and tend to favour those who perform well in linguistic and mathematical areas because these skills are highly valued in the culture. Because of the focus on verbal-linguistic skill, teachers also tend to emphasize this skill while teaching. Most of the time students are taught using the same approach for the whole class. Students who are linguistically inclined are able to learn from this approach of writing by the teacher. Students who are not linguistically inclined will find the traditional approach to writing dull and they might not be interested to follow the lesson. Knowing individual differences of ESL learners can help ESL teachers select more effective teaching methods. Teachers need to design different activities and tasks to cater to students' needs and interests and the multiple-intelligence approach provides an avenue for this purpose. This study investigates the application of multiple-intelligence strategies to improve the writing ability of students.

LITERATURE REVIEW

The theory of multiple intelligences provides a way of understanding intelligence which teachers can use as a guide to develop classroom activities and to address multiple ways of learning and knowing (Christison, 1999). Teaching strategies informed by multiple-intelligence theory can transfer some control from teachers to learners by giving students choices in the ways they will learn and demonstrate their leaning. By focusing on problem-solving activities that draw on multiple intelligences, these teaching strategies encourage learners to build on existing strengths and knowledge (Kallenbach, 1999).

Students can extend their learning strategies in response to the demands of instruction, context, and task (Kroonenberg, 1995; Skehan, 1995). Learning can happen more successfully when the teacher makes the processes of learning more transparent through strategy training (1991). Teachers should identify the students' preferred learning styles and multiple intelligences so that they can use their strengths in these areas to learn effectively, in this case to learn about writing and to improve their writing skill. Fuey (1986) demonstrated that ESL teachers should be wise enough to identify, investigate, and respond to differences in the emphasis students place on modes of learning. She points out that students from different educational backgrounds have varying preferences for rote learning, problem solving, creative thinking, and critical evaluation. Teachers should be able to identify different learning styles of their students and exploit the strengths or intelligences of these students to teach writing.

RESEARCH OBJECTIVE

This research aims to determine the effect of a series of multiple- intelligence instruction and strategies on the writing ability of Form 1 students. The effects on the six writing traits: ideas, organization, voice, word choice, sentence fluency and conventions, are discussed. The effect of multiple-intelligence instructions on the writing ability of the low and high achievers is also discussed.

THEORETICAL FRAMEWORK

This research is based on the Theory of Multiple-Intelligence (Gardner, 1983) and Triachic Theory (Sternberg, 1985). The Theory of Multiple Intelligences recognizes that every person has different needs, interests, and abilities. By knowing this one can tap into a student's area of strength so that the student will be able to learn more effectively. According to the Triachic Theory, the training of intellectual performance must be socioculturally relevant to the individual. Training programmes should provide links between training and the real world. Training programmes should also actively encourage individuals to manifest their differences in strategies and styles. It was based on these two theories that the multiple- intelligence strategies and instructions were designed (*Fig. 1*).

RESEARCH DESIGN

This is a quasi experimental research. The design is based on the non-equivalent control group (Campbell and Stanley, 1963). A Paired
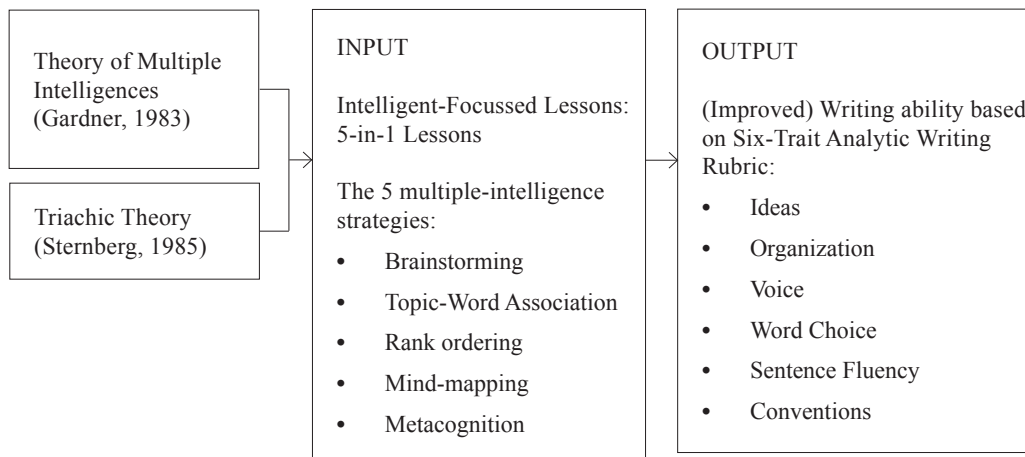
Fig. 1: Multiple-intelligence strategies

Sample T-Test was conducted to make sure the two groups were similar in writing ability before the pretest. This design was chosen because it was the best design for this research as it could control six sources of internal validity namely history, maturation, testing, instrumentation, selection, and mortality. History was controlled as the treatment and control groups ran simultaneously. Because the period of treatment was only two months, the possibility of any event occurring was very slim. Maturation and testing were controlled as they should manifest equally in the experimental and control groups. Maturation was controlled as the participants were from the same age group. Instrumentation was controlled as written tests were used. If the tests were not written and observers and interviewers were used, then there would be bias tendencies. Although intact groups were used the researcher reduced the effect of selection by checking the background of the students in terms of language proficiency, and to make sure that the two groups were almost similar. Mortality was also controlled in this study as the students were attending a government school and it was compulsory for them to attend classes. Careful consideration was taken to make sure that there was not much difference in regression between the control group and the experimental group. Regression was minimized by giving students a few pretests and posttests instead of only one. The average of these tests was taken to reduce the effect of regression.

SUBJECTS

The subjects consisted of 58 Form 1 students in two urban national secondary schools. The experimental group and the control group were similar in characteristics. They have similar family and socio-economic background and were from the same ethnic group.

METHODOLOGY

The Malaysian Adolescent Multiple-Intelligence Test (MAMIT) was administered to the students before the multiple-intelligence training.

MAMIT is a profile test designed by a group of Universiti Kebangsaan lecturers to identify the multiple-intelligence profile of students. This test was chosen as it was designed by Malaysians for Malaysians, and it was not culturally biased compared to multiple-intelligence profile tests from other countries. The purpose of using this test was to find out which multiple intelligence(s) the students were inclined towards. This was to enable the students to be put into groups to facilitate the group activity using multiple-intelligence strategies. Students who were good at a certain intelligent were to guide the other students with the multiple-intelligence strategies they were good at. The five multiple-intelligence strategies related to writing were topic-word association, brainstorming, mind-mapping, rank-ordering, and metacognition. The experimental group and the control group were given two compositions: one narrative and the other expository, to determine their writing ability before the training.

The students were given two months of multiple-intelligence instructions. The training consisted of two parts. The first part was the teaching of the five intelligences related to writing (*see* Appendix A). The second part was the teaching of the five multiple-intelligence strategies related to writing: topic-word association, brainstorming, mind-mapping, rank-ordering, and metacognition (*see* Appendices B and C). After the two months, students were given another two tests based on the same genre but different composition questions. The compositions for the posttest were similar to the compositions for the pretest. One month after the posttest a retention test was given to the students. The purpose of the retention test was to check whether the instructions taught were retained by the students after a period of time. The compositions were marked by two experienced teachers who were trained by the researcher on the Six-Trait Analytic Writing Rubric. The Six-Trait Analytic Writing Rubric was chosen as it was quantitative in nature. As this is a quantitative research the test was most appropriate to measure the writing ability

of students after two months of multiple-intelligence training. This rubric has a score of 1 to 6 with 1 the lowest and 6 the highest. The total marks for each composition is 36. The compositions were marked by two trained English Language teachers and were checked for interrater-reliability. The results were then analyzed using Paired Sample T-Test, ANOVA, and MANOVA.

The control group was taught as usual based on the Form I English textbook and syllabus except that they were not taught the multiple-intelligence strategies and instructions related to writing.

To compare the effect of multiple-intelligence instructions between the low achievers and high achievers, the scores for compositions were tabulated and converted to 100 percent. Those with 40 percent and below were categorized as low achievers and those with 41 percent and above were considered high achievers.

FINDINGS AND DISCUSSION

The data were analyzed using Paired Sample T-Test, ANOVA, and MANOVA. Based on the overall results there were significant improvements in the experimental group compared to the control group in writing ability. The writing ability of the experimental group had also improved significantly based on the Six-Trait Analytic Writing Rubric: ideas, organization, voice, word choice, sentence fluency, and conventions. The results of the retention test when compared to the pretest results show significant improvement. When the results were compared to the posttest results there was no significant improvement. The comparison between the pretest and the posttest results is shown in Table 1.

The mean for the experimental group is 2.94 (SD = 3.68). The t score for the experimental group is 4.23. The critical value for $\alpha = 0.1$ is 1.31, $\alpha = 0.05$ is 1.70 and $\alpha = 0.005$ is 2.77. The t score falls within the critical region for all α. This means that the null hypothesis is rejected. The results show that the experimental group has improved significantly after the treatment.

As for the control group the mean is 1.25 (SD = 3.85). The t score is 1.78. The critical values are 1.31 ($\alpha = 0.1$), 1.70 ($\alpha = 0.05$) and 2.76 ($\alpha = 0.005$). Thus, the t score falls within the critical regions for $\alpha = 0.1$ and $\alpha = 0.05$. This indicates that the improvement for total scores in the control group is less significant compared to the experimental group.

To further prove that the experimental group has achieved significant improvement, MANOVA is used to compare the results between the experimental and the control groups after treatment. Table 2 shows the comparison between the results of the experimental group and the control group after two months of training.

As shown in Table 2, the degrees of freedom are 6 and 51. The F value is 6.38 compared to the critical value of 1.90 ($\alpha = 0.1$) and 2.41 ($\alpha = 0.05$). It can be seen here that the experimental group performed better compared to the control group.

TABLE 1
Paired sample T-test showing comparison between posttest and pretest results for total marks

Group	df	Mean	Standard deviation	t score
Experimental	27	2.94	3.68	4.23
Control	29	1.25	3.85	1.78

Note: EXPERIMENTAL GROUP   CONTROL GROUP
Critical value, α 0.1 = 1.31   Critical value, α 0.1 = 1.31
Critical value, α 0.05 = 1.70   Critical value, α 0.05 = 1.70
Critical value, α 0.005 = 2.77   Critical value, α 0.005 = 2.76

TABLE 2
MANOVA for experimental group and control group after the treatment

Parameter	Value
Lamda	0.57
F value	6.38
Degree of freedom 1	6
Degree of freedom 2	51
Critical value for significant level of 0.1	1.90
Critical value for significant level of 0.05	2.41

The significant improvement for the experimental group is due to the multiple-intelligence training the students went through for two months. This clearly supports the Theory of Multiple Intelligences which recognizes that every person has different needs, interests, and abilities (Gardner, 1983). By knowing this one can tap into students' area of strength so that they are able to learn more effectively. It also supports the Triachic Theory (Sternberg, 1985) which states that instructions must be designed to accommodate different styles and strategies of learning.

This study not only identified the strengths of each student but also made them leaders in their groups based on the intelligence they were good at. As the ability to write encompasses the five intelligences namely verbal-linguistic, visual-spatial, logical-mathematical, interpersonal and intrapersonal, the study made sure that the students were trained to use all these intelligences to improve their writing ability. The result shows that after the multiple-intelligence training, the overall writing ability of students improved significantly. The improvement in writing ability can also be seen based on all the six writing rubrics.

Topic-word association which is related to verbal-linguistic intelligence has shown to increase the writing ability of students in terms of Word Choice. In topic-word association students were asked to write down words associated with the topic. Another strategy, brainstorming has been proven to be effective for generating ideas. Brainstorming is related to verbal-linguistic intelligence and intrapersonal intelligence. For organization, the multiple-intelligence strategy used was rank ordering of ideas. In composition writing, rank-ordering of ideas in a composition is important as good organization will make the composition run smoothly. Rank-ordering is related to logical-mathematical intelligence. For Sentence Fluency, there was a significant improvement. The two multiple-intelligence strategies taught, rank-ordering and metacognition, had definitely improved the writing ability of students in terms of Sentence Fluency. Writing convention was not taught directly but through metacognition which was one of the multiple-intelligence strategies. Students were asked to make sure that grammar and punctuation were correct in the metacognition training. It can be seen here that the metacognition strategy was effective in improving writing conventions. One of the strategies taught in visual-spatial intelligence was mind-mapping. Mind-mapping was used to list down ideas for a composition. With mind-mapping, students were able to see the points clearly and their ideas were more organized. Smargoinsky (1985) explained that "non-written" texts are capable of providing the potential for enabling the construction of meaning as written texts.

Table 3 shows the comparison between the experimental group and the control group for the retention test. Lamda is 0.71 and the f value is 3.53. The degree of freedom 1 is 6 and 2 is 51. The critical value for the significance level 0.1 is 1.90 and 0.05 is 2.41. It can be seen that the F value is within the critical region. Thus, the null hypothesis is rejected. In conclusion, there

is significant improvement in the experimental group based on the retention test as compared to the control group.

Based on Table 4, the difference of mean values between the posttest and the pretest for high achievers is 1.66 and –0.73 for the experimental group and control group respectively. The standard deviations are 3.33 and 2.32 respectively. Based on the Paired Sample T-Test the t value for the experimental group is 2.12 as compared to the control group which is –1.26. The critical values for the experimental group are 1.753 (α = 0.05), 2.131 (α = 0.025), and 2.602 (α = 0.01). The critical values for the control group are 1.740 (α = 0.05), 2.120 (α = 0.025), and 2.567 (α = 0.01). For all the critical values, the t value is within the critical region. This means that the null hypothesis is rejected. This indicates that the high achievers in the experimental group have shown great improvement after the treatment as compared to the high achievers in the control group.

The comparison between the experimental group and the control group for low achievers is shown in Table 4. The mean for the experimental group is 3.62 (SD = 3.83) and for the control group is 3.53 (SD = 3.24). The t score for the experimental group is 3.27 and the control group is 3.78. The critical values for the experimental group are 1.833 (α = 0.05), 2.821 (α = 0.01), and 3.250 (α = 0.005). The critical values for the control group are 1.771 (α = 0.05), 2.625 (α = 0.01), and 3.012 (α = 0.005). It can be seen that both groups have improved but the experimental group has improved more.

CONCLUSION

The results show that multiple-intelligence instructions have proven to be successful in improving the writing ability of students. Students should be taught based on their strengths and these strengths can be used to help others to improve their intelligences, thus their writing ability. The results also show that multiple-intelligence instructions and

TABLE 3
Comparison between experimental group and control group for the retention test

Parameter	Value
Lamda	0.71
F value	3.53
Degree of freedom 1	6
Degree of freedom 2	51
Critical value for significant level of 0.1	1.90
Critical value for significant level of 0.05	2.41

TABLE 4
Paired sample t-test showing comparison between experimental group and control group for high achievers

Group	df	Mean	Standard deviation	t score
Experimental	15	1.66	3.33	2.12
Control	17	- 0.73	2.32	- 1.26

Note: EXPERIMENTAL GROUP   CONTROL GROUP
Critical value, α 0.05 = 1.753   Critical value, α 0.05 = 1.740
Critical value, α 0.025 = 2.131   Critical value, α 0.025 = 2.120
Critical value, α 0.01 = 2.602   Critical value, α 0.01 = 2.567

TABLE 5
Paired sample t-test showing comparison between experimental group and control group for low achievers

Group	df	Mean	Standard deviation	t score
Experimental	9	3.62	3.83	3.27
Control	13	3.53	3.24	3.78

Note: EXPERIMENTAL GROUP CONTROL GROUP
Critical value, α 0.05 = 1.833   Critical value, α 0.05 = 1.771
Critical value, α 0.01 = 2.821   Critical value, α 0.01 = 2.65
Critical value, α 0.005 = 3.250   Critical value, α 0.005 = 3.012

strategies have greater effect on high achievers as compared to low achievers. This may be due to the fact that high achievers could understand the instructions better and have the ability to apply the strategies they have learnt to increase their writing ability.

Students should know their own multiple intelligences. By doing so, they can make use of their strength to improve their writing ability as well as the writing ability of others. Teachers should incorporate multiple-intelligence strategies when teaching writing as the approach not only improves their writing ability but also makes the lesson more interesting and effective.

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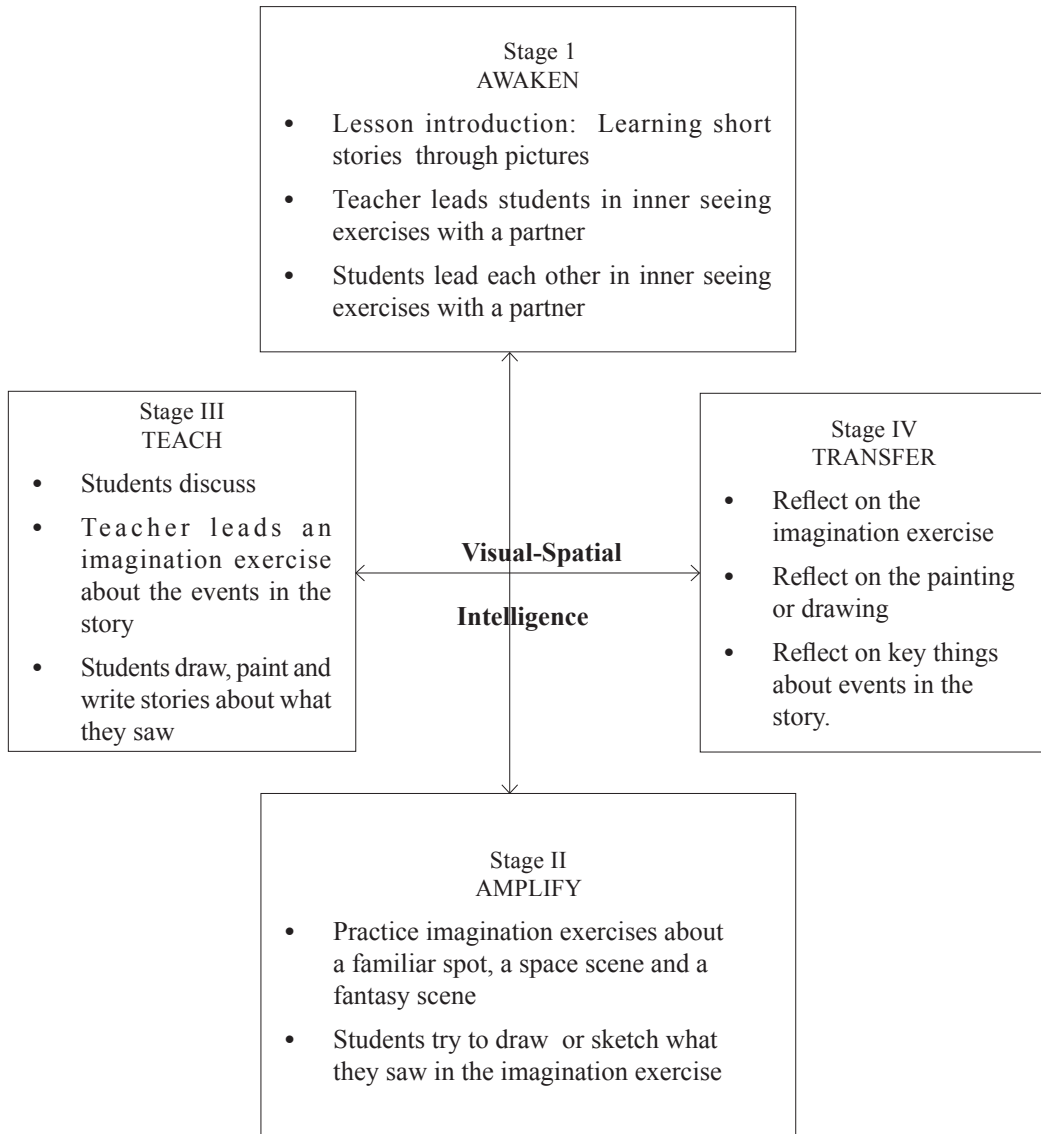Gardner, H. (1993). *Multiple Intelligences: The Theory in Practice.* New York: Basic Books.

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APPENDIX A

Sample of Multiple-Intelligence Instructions (Part 1)

Stage 1
AWAKEN

- Lesson introduction: Learning short stories through pictures

- Teacher leads students in inner seeing exercises with a partner

- Students lead each other in inner seeing exercises with a partner

Stage III
TEACH

- Students discuss

- Teacher leads an imagination exercise about the events in the story

- Students draw, paint and write stories about what they saw

Visual-Spatial

Intelligence

Stage IV
TRANSFER

- Reflect on the imagination exercise

- Reflect on the painting or drawing

- Reflect on key things about events in the story.

Stage II
AMPLIFY

- Practice imagination exercises about a familiar spot, a space scene and a fantasy scene

- Students try to draw or sketch what they saw in the imagination exercise

APPENDIX B

Sample Multiple-Intelligence Instructions (Part II)

Class: Form 1B
Time: 2.20 – 3.30 pm
Theme: Social Issues
Topic: Safe Homes

Objective: Students should be able to write a talk about 'Safety at Home.'

Materials: Display paper, marker pens

How the lesson is carried out:

1. Set induction : Students look at the pictures and say what is right and what is wrong in each picture. (visual-spatial)

2. Students read and talk on safety tips for children. (verbal-linguistic)

3. Students match the paragraphs with the main idea given. (logical-mathematical)

4. Students are asked to write a talk about safety at home. Students can choose the following topics:

    • Safety in the kitchen
    • Safety in the bathroom
    • Safety against strangers
    • Getting help in case of emergencies

5. Students use the following strategies to help them in their writing:

    • Topic-word association (verbal-linguistic)
    • Brainstorming (interpersonal)
    • Mind-mapping (visual-spatial)
    • Rank-ordering (logical-mathematical)
    • Metacognition (intrapersonal0

6. Students are asked to write a talk with an *introduction, content* and *conclusion.*

7. Students are asked to think of words related to the topic and write in the box at the corner of the display sheet. (verbal-linguistic)

8. Students study the topic and in groups brainstorm the points. (interpersonal)

9. Students discuss and rank-order the points. (logical-mathematical)

10. Students then mind-map the points on the display sheet. (visual-spatial)

11. Students ask themselves questions related to the topic before they write out the composition. (intrapersonal)

12. Conclusion: Students present their discussion to the class. (verbal-linguistic)
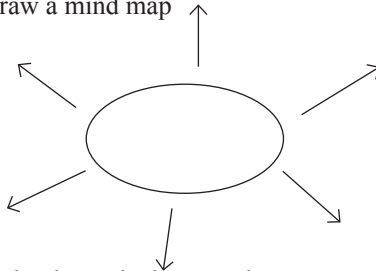
APPENDIX C

The 5 Multiple-Intelligence Strategies for Writing

1. Brainstorming (Interpersonal Intelligence)

    ♠ Discussion

    ♠ Get ideas

    ♠ Do not bother which is right or wrong

    ♠ Just write down!

2. Mind-Mapping (Visual-Spatial Intelligence)

    ♠ Draw a mind map

    ♠ Write down the key words

    ♠ Key words are points related to the topic

    ♠ Use your imagination!

3. Rank-Ordering (Logical-Mathematical Intelligence)

    ♠ Arrange the points logically

    ♠ Use Paragraphs

    ♠ Use Linkers

4. Topic-Word Association (Verbal-Linguistic Intelligence)

    ♠ Write words which are related to topic

    ♠ Word Association

5. Metacognition (Intrapersonal Intelligence)

    ♠ Think about what you are writing:

    - Did I answer the question?
    - Are the points relevant/enough?
    - How do I improve on it?
    - Do people understand what I wrote?