

## **CHAPTER 4**

### **DATA ANALYSIS AND RESULTS**

This chapter presents the results of the study, according to the two objectives, which are, (1) to develop an English critical thinking syllabus for the kindergarten level, (2) to compare the critical thinking skills of kindergarten students before and after being taught through the English critical thinking syllabus.

The results of the lesson plan evaluation forms and the students' performance assessment during the syllabus implementation show that the first objective was achieved. The result of the pretest and posttest done through interviews verifies the second objective was achieved.

To achieve the first objective, 29 lesson plans were developed for instruction. Then, they were evaluated by 2-4 experts during syllabus implementation. The following are the results of the lesson plan evaluation forms.

#### **4.1 Results of the lesson plan evaluation forms**

The results of all the lesson plan evaluation forms from lesson 1 to lesson 29 are presented in the following table. Three lessons that were not evaluated by experts were lesson 7, lesson 11 and lesson 15. Lesson 7 was an extension of lesson 6 where students finished their work. Therefore, the experts evaluated both lessons at one time, naming it as lesson 6. Lesson 11 was a video session and lesson 15 was a song lesson, where students sang the songs and danced.

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Table 4: Result of the lesson plan evaluation forms

Lessons	Learning objectives		Contents		Teaching procedures		Classroom environment		Overall X and S.D.		Effectiveness
	X	S.D.	X	S.D.	X	S.D.	X	S.D.	Overall X	Overall S.D.	
Lesson 1	4.00	0.00	3.67	0.29	3.87	0.58	4.0	0.70	3.88	0.49	Effective
Lesson 2	4.00	0.00	3.00	0.00	4.33	1.71	3.97	0.58	3.73	0.53	Effective
Lesson 3	4.15	0.21	4.43	0.23	4.36	0.41	4.70	0.00	4.40	0.34	Effective
Lesson 4	4.50	0.00	5.00	0.00	4.6	0.32	4.50	0.50	4.61	0.36	Very Effective
Lesson 5	4.70	0.00	4.7	0.00	4.49	0.23	4.43	0.23	4.56	0.23	Very Effective
Lesson 6	4.70	0.00	4.7	0.00	4.43	0.33	4.90	0.17	4.59	0.31	Very Effective
Lesson 7	-	-	-	-	-	-	-	-	-	-	-
Lesson 8	4.70	0.00	4.47	0.41	4.52	0.19	4.13	0.51	4.48	0.31	Effective
Lesson 9	4.25	0.35	3.67	0.58	4.45	0.28	3.83	0.58	4.21	0.48	Effective
Lesson 10	4.25	0.35	4.17	0.29	4.45	0.28	4.50	0.50	4.39	0.31	Effective
Lesson 11	-	-	-	-	-	-	-	-	-	-	-
Lesson 12	5.00	0.00	4.43	0.23	5.55	1.83	4.90	0.17	4.72	0.24	Very Effective
Lesson 13	5.00	0.00	4.57	0.23	4.58	0.29	5.00	0.00	4.69	0.29	Very Effective
Lesson 14	4.63	0.18	4.50	0.25	4.57	0.23	4.75	0.25	4.56	0.26	Very Effective
Lesson 15	-	-	-	-	-	-	-	-	-	-	-

Lessons	Learning objectives		Contents		Teaching procedures		Classroom environment		Overall X and S.D.		Effectiveness
	X	S.D.	X	S.D.	X	S.D.	X	S.D.	Overall X	Overall S.D.	
Lesson 16	5.00	0.00	4.33	0.29	4.70	0.42	5.00	0.00	4.68	0.42	Very Effective
Lesson 17	5.00	0.00	5.00	0.00	4.95	0.16	5.00	0.00	4.97	0.11	Very Effective
Lesson 18	5.00	0.00	4.83	0.29	4.60	0.32	4.50	0.00	4.66	0.29	Very Effective
Lesson 19	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	Very Effective
Lesson 20	3.75	0.35	4.00	0.00	4.10	0.39	3.83	0.29	4.02	0.35	Effective
Lesson 21	3.85	0.12	4.10	0.17	4.13	0.41	4.33	0.35	4.16	0.37	Effective
Lesson 22	4.75	0.35	4.50	0.00	4.85	0.29	5.00	0.00	4.82	0.25	Very Effective
Lesson 23	4.5	0.00	4.17	0.29	4.4	0.66	4.33	0.76	4.29	0.63	Effective
Lesson 24	4.5	0.71	3.83	0.29	4.35	0.78	4.5	0.5	4.24	0.71	Effective
Lesson 25	4.00	0.00	4.17	0.29	4.2	0.26	4.33	0.29	4.21	0.25	Effective
Lesson 26	4.5	0.00	3.67	0.76	5.05	1.46	4.67	0.29	4.42	0.58	Effective
Lesson 27	4.3	0.0	4.43	0.23	4.21	0.14	4.30	0.00	4.29	0.18	Effective
Lesson 28	5.0	0.00	4.5	0.00	4.75	0.26	4.67	0.29	4.74	0.26	Very Effective
Lesson 29	4.5	0.00	4.67	0.29	4.70	0.26	4.83	0.29	4.71	0.26	Very Effective
*	4.52	0.42	4.35	0.53	4.47	0.46	4.53	0.48	4.46	0.32	Effective

\* Overall X and S.D. for each category in the lesson plan evaluation form

The results from Table 4 show that there were 13 lessons that were very effective (lessons 4, 5, 6, 10, 11, 12, 13, 14, 15, 16, 19, 25 and 26) and another 13 that were effective (lessons 1, 2, 3, 7, 8, 9, 17, 18, 20, 21, 22, 23 and 24). All questions yielded high mean ( $\bar{X}$ ) values, above 3.00 and low standard deviation (S.D.) values, where, the least was 0.00. This indicates that all the students were learning equally well in each area. At least two experts and the researcher evaluated each lesson. In some lessons, there were more than two experts. For list of experts, see Appendix H.

#### **4.2 Result of students' performance assessments during syllabus implementation**

Students were evaluated about critical thinking skills in 22 lessons after finishing learning each lesson. In a lesson, they were assessed on only one critical thinking skill. The following table presents the results of each student's critical thinking assessment. Also, each student's overall achievement is presented. Due to the different rubric for assessing each critical thinking skill, students' critical thinking skills were calculated in percentages.

Table 5: Performance assessment of critical thinking ability of each student during the syllabus implementation

Critical thinking skills	Student 1		Student 2		Student 3		Student 4		Student 5		Student 6	
	Marks	%	Marks	%	Marks	%	Marks	%	Marks	%	Marks	%
<b>Comprehension</b> (3 lessons) Total is 3	2	66.67	3	100	3	100	3	100	2	66.67	3	100
<b>Application</b> (4 lessons) sub-skill- order/categorize Total is 9	9	100	8	88.89	9	100	9	100	9	100	8	88.89
<b>Analysis</b> (2 lessons) sub-skill- compare and contrast Total is 2	2	100	2	100	2	100	2	100	2	100	2	100
<b>Create</b> (5 lessons) Total is 18	15	83.33	16	88.89	15	83.33	17	94.44	15	83.33	15	83.33
<b>Evaluate</b> (1 lesson) Total is 1	1	100	1	100	1	100	1	100	1	100	1	100
<b>Problem-solving</b> (5 lessons) Total is 9	6	66.67	5	55.55	7	77.77	6	66.67	9	100	6	66.67
<b>Giving reasons</b> (3 lessons) Total is 6	6	100	6	100	6	100	6	100	6	100	6	100
<b>Total score (from 48)</b>	41	85.42	41	85.42	43	89.58	44	91.67	44	91.67	41	85.42

Critical thinking skills	Student 7		Student 8		Student 9		Student 10		Student 11		Total
	Marks	%	Marks	%	Marks	%	Marks	%	Marks	%	
<b>Comprehension</b> (3 lessons) Total is 3	3	100	3	100	3	100	2	66.67	3	100	90
<b>Application</b> (4 lessons) sub-skill- order/categorize Total is 9	8	88.89	9	100	8	88.89	9	100	9	100	95.96
<b>Analysis</b> (2 lessons) sub-skill- compare and contrast Total is 2	2	100	2	100	2	100	2	100	2	100	100
<b>Create</b> (5 lessons) Total is 18	16	88.89	15	83.33	18	100	16	88.89	18	100	88.88
<b>Evaluate</b> (1 lesson) Total is 1	1	100	1	100	1	100	1	100	1	100	100
<b>Problem-solving</b> (5 lessons) Total is 9	6	66.67	7	77.77	6	66.67	7	77.77	9	100	74.75
<b>Giving reasons</b> (3 lessons) Total is 6	6	100	6	100	6	100	6	100	6	100	100
<b>Total score (from 48)</b>	43	89.58	43	89.58	44	91.67	43	89.58	48	100	90.34

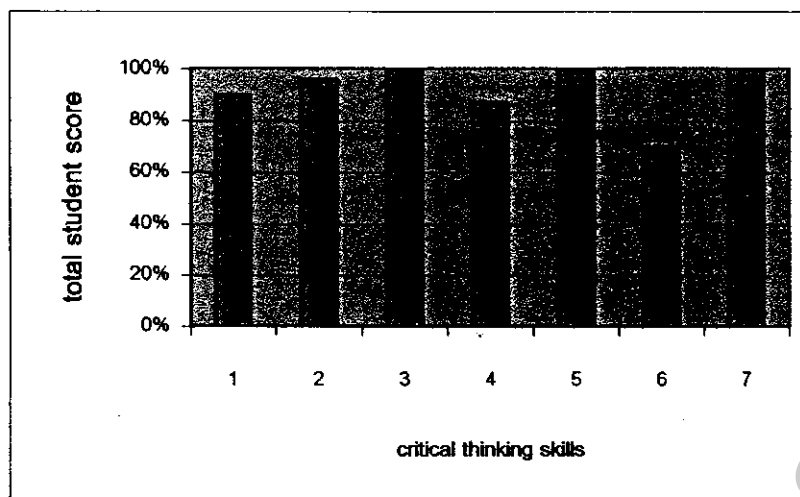
According to Table 5, each student's mastery of the seven critical thinking skills exceeds 85.42%, far above the 50% criteria set earlier. In addition, in three of the critical thinking skills, analysis, evaluation and giving reasons, the students' mastery percentage is 100. These skills are all at the top most level of all the higher order skills. The lowest scoring critical thinking skill is problem solving at 74.75%. Young students are not used to imagining situations and problem solving required them to imagine. Young students perform better at concrete tasks. Students can deal with difficult abstractions (Evertson, 1997) if they perceive realia or pictures. The teacher should use more pictures and realia for students to allow students to practice more imagination in order to problem solve.

Regarding the performance of each student in each critical thinking skill, all students got more than 50%, the passing score, in all the skills. However, this student got comparably high marks in other critical thinking skills. Furthermore, this student mastered this skill in the posttest and got high marks. Also, student number 11 got 100% in all the critical thinking skills.

Students' overall performance during the syllabus was very good. This is proven by the students' total percentage that is far above the passing level of 50%.



Figure 1: Achievement of all the students in each critical thinking skill



(1- comprehension, 2- application, 3- analysis, 4- synthesis, 5- evaluation, 6- problem solving, 7- giving reasons)

From Figure 1, students achieved 100% scores in the critical thinking skills of analysis, evaluation and giving reasons. The total student achievements in each critical thinking skill exceeds 50%.

### 4.3 Development of students' critical thinking skills

The development of students' critical thinking skills can be demonstrated by the results of the pretest and posttest done through oral assessment as summarized in the table below:

Table 6: Comparison of pretest and posttest results

Test	Number of students	Total X score (out of 9 marks).	Total S.D. score	Df	t-test value
Pretest	11	2.07	1.68	10	15.97
Posttest	11	8.08	0.71		

According to Table 6, the X score of the posttest is higher than the X score of the pretest. Also, the S.D. score of the posttest is lower than the S.D. score of the pretest. The t-test value of the pretest and posttest is 15.97, which means that there is a dramatic improvement of students' critical thinking skills in the posttest results. The result of the posttest is significantly higher than the pretest at the significance level of 0.01. The SPSS output is shown in Appendix F.