

CHAPTER VI
OBSERVED OUTCOMES, RESULTS, AND
ANSWERS TO RESEARCH QUESTIONS

At the end of the third grading period, I assembled the information collected throughout the case study for analysis. I gathered the information from the following sources: the teacher's grade book, the surveys administered to students and parents, the teacher's research journal, the Final Grade Summary Sheets, and the taped interviews with the students and me, as the teacher-researcher. I displayed the data collected in graphs, tables, and matrices. This chapter will report observed outcomes, results, and answers to the 24 research questions.

Students' Grades for Three Grading Periods

For three grading periods, I recorded the students' learning contract grades and their earned grades in my grade book. These grades helped to answer five research questions: "What choices do students make with respect to grades?" "What grades do students contract for and why?" "Do students earn the grade for which they contract for?" "Do learning contracts help students to be better learners?" and "Do learning contracts improve student achievement?" (see Research Questions, Table 2).

I converted both contracted grades and earned grades from letter grades to numeric grades or grade point averages as follows: A+ = 4.3, A = 4.0, B+ = 3.3, B = 3.0, C = 2.0, D = 1.0, and F = 0. Then, I subtracted the contracted grade from the earned grade for each student and recorded these numbers in Tables K₁ through K₅ for periods zero (K₁), first (K₂), second (K₃), fourth (K₄), and five (K₅) (see Appendix K). Using a line graph, I plotted the mean differences between contracted grades and earned grades for each of the five classes for three grading terms (see Figure 3).

The zero period students had a range of 4.3, 3.0, and 5.3 for the mean differences between the contracted grades and earned grades over three grading terms. The mean differences for three grading terms were -0.48, -0.34, and -0.66 respectively (see Figure 3). In the first grading term, 4 of the 29 students in zero period contracted for grades lower than an A, and 15 students earned at least their contracted grade. In the second grading term, eight students contracted for grades lower than an A, and 18 students earned at least their contracted grade. In the third marking period, nine students contracted for grades lower than

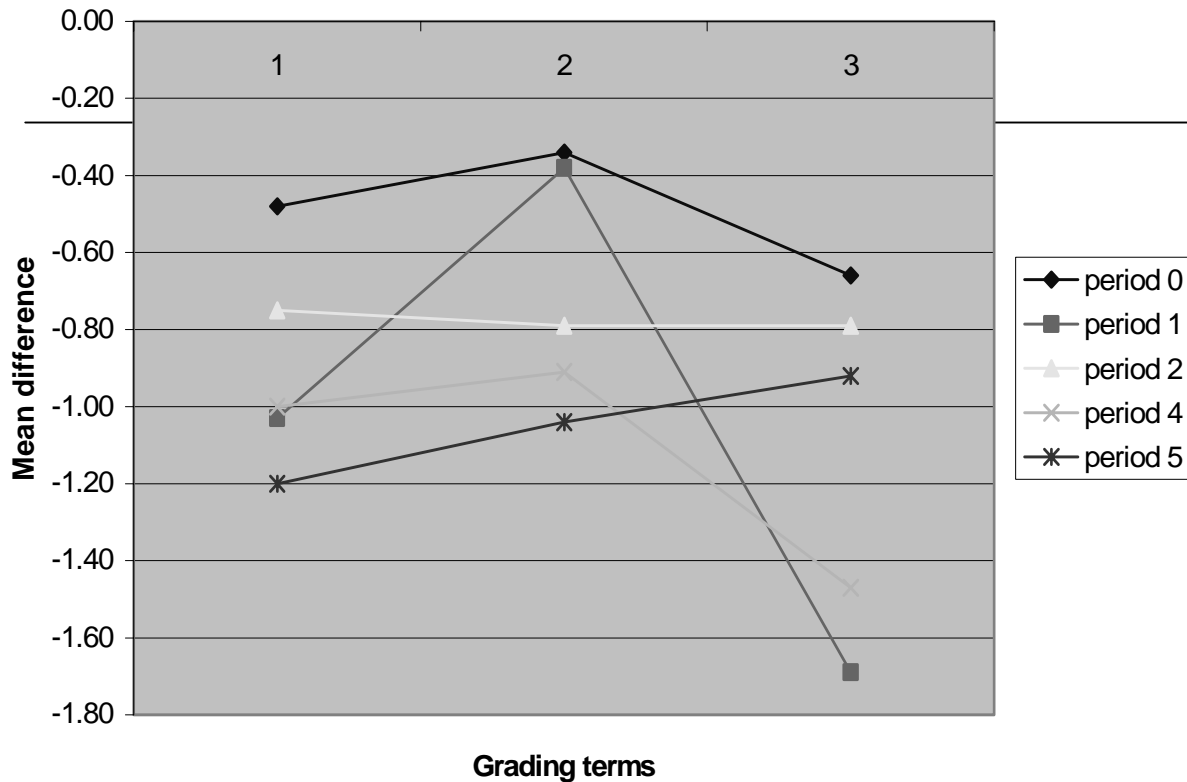


Figure 3. Mean differences between contracted grades and earned grades for students in all classes for three grading terms.

an A, and 19 students earned at least their learning contract grade (see Appendix K, Table K₁). With a cumulative grade point average of 3.26, the zero period students maintained the highest earned grade point average over three grading terms.

First period students had a range of 5.0, 4.0, and 5.3 for the mean differences between contracted grades and earned grades for three grading terms. The mean differences for three grading terms were -1.03, -0.38, and -1.69 respectively (see Figure 3). In the first grading term, 10 of 29 students contracted for grades less than an A, and 12 students earned at least their contracted grades. During the second marking term, 19 students contracted for a grade less than an A, and 14 students earned at least their contracted grades. In the third marking term, 12 students contracted for grades less than an A, and four students earned at least their contracted

grades. The first period students had the lowest grade point averages over three grading terms with a cumulative grade point average of 2.30 (see Appendix K, Table K₂).

Second period students had a range of 4.6, 5.3, and 4.0 for the mean differences between contracted grades and earned grades for three grading terms. The mean differences for three grading terms were -0.75, -0.79, and -0.79 respectively (see Figure 3). A total of 5 of 26 students contracted for a grade less than an A, and 13 students earned at least their contracted grades. In the second marking term, eight students contracted for a grade less than an A, and 10 students earned at least their contracted grades. For the third marking period, 11 students contracted for a grade less than an A, and 10 students received at least their contracted grades. Over three grading terms, the second period students had a cumulative grade point average of 2.86 (see Appendix K, Table K₃).

Fourth period students had a range of 5.0, 4.3, and 4.6 for the mean differences between the contracted grades and the earned grades for three grading terms. The mean differences for three grading terms were -1.00, -0.91, and -1.47 respectively (see Figure 3). Nine of 27 students contracted for grades less than an A for the first grading term, and nine students earned at least their contracted grades. In the second marking term, 11 students contracted for grades less than an A, and 11 students earned at least their contracted grades. For the third grading term, 13 students contracted for grades less than an A, and 10 students earned at least their contracted grade. The fourth period students over three grading terms had a cumulative grade point average of 2.34 (see Appendix K, Table K₄).

Fifth period students had a range of 6.0, 3.6, and 3.0 for the mean differences between contracted grades and earned grades over three grading terms. The mean differences for the three grading terms were -1.20, -1.04, and -0.92 respectively (see Figure 3). During the first grading term, only 2 of 26 students contracted for a grade less than an A, and 10 students earned at least their contracted grades. For the second marking term, eight students contracted for a grade less than an A, and six students earned at least their contracted grades. In the third grading term, 10 students contracted for grades less than an A, and nine students earned at least their contracted grades. The fifth period students had a cumulative grade point average of 2.62 over three grading terms (see Appendix K, Table K₅).

Students' and Parents' Survey Results

I administered two surveys, one to the students in the five life science classes and the other to the parents who attended the Parent-Teachers' Conferences. The student's survey asked students about their experiences with the learning contract for three grading periods. The survey questions for the students can be located in Appendix D. The other survey asked the parents about their students' learning contracts for the first and second grading periods. The parents' survey questionnaire serves as Appendix F.

Students' Survey Results

The student's survey consisted of 15 statements regarding the learning contract. I have shown the students' responses (non-weighted) for all five classes in Appendix J. Arranged in two ways, the first type of question weighted the responses by assigning the most positive response (strongly agree) five, and the least positive response (strongly disagree) one, and those responses in between two (disagree), three (undecided), and four (agree), respectively. Two surveys questions, numbers 8 and 13, I scored in reverse, since these two questions elicited negative responses. After tabulation of the scored responses for each question in Table 3, I then averaged them for each of the five periods. I summarized the averages for all five classes at the end of Table 3.

The summary averages across the survey questions ranged from a low of 2.8 to a high of 4.0. Question 8 (Q-8), "My friends and I never talked about the learning contract," received the lowest average with 2.8, and question 12 (Q-12), "I liked working with my team on assignments during class time," received the highest average with 4.0. Question 14 (Q-14), "I signed up for an A more than any other grade for a six-week grading period," had an average of 3.9. The students indicated that they: (a) thought the learning contract helped to know the goings-on in the classroom with respect to homework assignments and daily classroom activities (Q-1, 3.4); (b) did more additional activities than required (Q-2, 3.0); (c) thought the learning contract helped with better organization of daily assignments (Q-3, 3.3); (d) found it easy to find assignments using the RA and AA numbers found on the learning contract (Q-4, 3.6); (e) discovered the learning contract helped set goals to earn high grades (Q-5, 3.2); (f) found that the total points had easier attainability than letter grades (Q-6, 3.1); (g) felt good about grades in science (Q-7, 3.4); (h) learned more about science using the additional activities (Q-9, 3.1); (i) found they did

not need any special skills to use a learning contract (Q-10, 3.6); (j) discovered that if they set high goals for grades they could succeed (Q-11, 3.6); (k) did not like working alone outside the classroom (Q-13, 3.4); recommended that a learning contract be used again next school year (Q-15, 3.5). The summary averages supported a positive trend towards using the learning contract again for the next school year.

The second approach for evaluating the students' survey responses divided the five periods into two groups based on grades. I totaled the weighted responses for each survey question for the two groups formed. Table 4 displays these results.

The student survey questions aligned with the research questions I developed at the beginning of the case study (see Table 2). The research questions for students aimed at eliciting information about the following: (a) setting high academic goals, (b) keeping organized with assignments, (c) motivating students to work, (d) learning contract satisfaction, (e) the necessity of special skills. I grouped research questions with survey questions in order to establish answers to the research question "How do average and above average students differ in their evaluation of the learning contract?"

Using the same weighted values as used for Table 3, I averaged the survey responses. I reverse weighted questions 8 and 13. Other statistical information included mean, standard deviation, the minimum values, maximum values, and the mean difference.

Then, I divided the students' responses by periods into two groups. Students in periods zero and five formed the above average grade group because they had more students with above average grades than the students in periods one, two, and four, who formed the average grade group (see Appendix K).

Survey question 12 (working in terms) scored the highest mean (4.03, 4.11) in both groups as it did in Table 3, while question 8 (did not discuss assignments) again received the lowest mean with a 2.77 from the average grade group and a 2.79 from the above average grade group. The other survey questions in the average grade group all showed means averaging less than or greater than 3.00, with a range of 2.77 to 4.03. In the above average grade group, the means ranged from 2.79 to 4.11. Survey question eight had a mean of 2.79. Survey question two asked, "if the learning contract motivated students to do more work than required", and it registered a mean of 2.80.

In Table 4, when comparing the mean scores between the two groups, the above average grade groups had lower mean scores in 11 of the 15 results (73%). The greatest variation in the mean scores occurred in the cluster dealing with how the learning contract helped students to set high academic goals.

These survey questions again involved: (a) earning high grades, (b) being able to succeed, and (c) signing up for an A. The responses of the average grade group responded were more agreeable than the above average grade group with means of 3.36, 3.81, and 3.95, as compared to 2.98, 3.34, and 3.75, respectively.

The students' survey responses from the two grade groups (see Table 4), and the student surveys responses for all five classes (see Table 3) both supported the use of a learning contract for the next school year.

Table 3**Student Survey Weighted Responses for all Periods with Averages**

Responses of Students in Period 0 (N = 26)															
Response	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6	Q-7	Q-8	Q-9	Q-10	Q-11	Q-12	Q-13	Q-14	Q-15
5	25	5	20	30	10	35	10	5	20	15	15	40	2	55	35
4	40	28	44	52	24	12	44	18	12	68	36	52	12	28	28
3	27	24	12	12	33	9	24	3	27	9	36	9	0	3	18
2	2	8	10	6	8	16	8	24	16	4	4	2	44	12	2
1	1	6	2	0	3	5	1	25	2	1	0	1	35	1	5
Average	3.7	2.7	3.4	3.8	3.0	3.0	3.3	2.9	3.0	3.7	3.5	4.0	3.6	3.8	3.4

Responses of Students in Period 1 (N = 26)															
Response	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6	Q-7	Q-8	Q-9	Q-10	Q-11	Q-12	Q-13	Q-14	Q-15
5	20	5	10	10	10	30	25	5	5	20	40	50	4	35	50
4	44	40	56	40	40	28	36	14	40	56	44	40	12	36	28
3	18	21	12	24	27	6	15	18	30	12	9	9	18	12	18
2	4	10	10	6	4	8	10	16	6	2	6	0	28	10	0
1	3	3	3	3	3	7	2	20	2	3	1	3	15	1	3
Average	3.4	3.0	3.5	3.2	3.2	3.0	3.4	2.8	3.2	3.6	3.8	3.9	3.0	3.6	3.8

(table continues)

Table 3**Student Survey Weighted Responses for all Periods with Averages****Responses of Students in Period 2 (N = 21)**

Response	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6	Q-7	Q-8	Q-9	Q-10	Q-11	Q-12	Q-13	Q-14	Q-15
5	20	15	20	20	15	20	35	6	5	20	40	35	3	70	30
4	40	24	20	36	20	16	32	8	20	52	28	28	6	12	16
3	12	21	12	15	24	15	9	18	27	6	18	9	15	3	21
2	6	10	12	6	10	12	6	8	10	2	0	6	28	6	4
1	0	0	2	0	0	2	0	15	1	1	0	1	15	0	2
Average	3.7	3.3	3.1	3.7	3.3	3.1	3.9	2.6	3.0	3.9	4.1	3.8	3.2	4.3	3.5

Responses of Students in Period 4 (N = 17)

Response	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6	Q-7	Q-8	Q-9	Q-10	Q-11	Q-12	Q-13	Q-14	Q-15
5	30	5	30	30	25	25	20	3	5	25	20	55	2	45	25
4	16	28	16	24	20	16	28	10	28	20	16	16	6	12	36
3	0	6	9	6	15	12	12	3	18	6	18	3	6	6	0
2	6	12	4	2	0	6	0	28	2	6	2	0	24	4	2
1	3	0	2	2	2	1	2	5	2	2	2	1	25	1	2
Average	3.2	3.0	3.6	3.8	3.6	3.5	3.6	2.9	3.2	3.5	3.4	4.4	3.7	4.0	3.8

(table continues)

Table 3**Student Survey Weighted Responses for all Periods with Averages**Responses of Students in Period 5 (N = 28)

Response	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6	Q-7	Q-8	Q-9	Q-10	Q-11	Q-12	Q-13	Q-14	Q-15
5	5	10	15	20	0	15	10	6	15	25	15	80	1	60	40
4	56	28	40	52	40	44	44	12	44	40	36	20	10	24	12
3	12	24	12	9	33	9	18	18	21	21	21	12	24	0	15
2	6	14	10	6	6	8	8	32	6	4	12	0	28	14	6
1	6	4	6	5	4	7	5	5	0.3	3	2	2	30	2	8
Average	3.0	2.9	3.0	3.3	3.0	3.0	3.0	2.6	3.1	3.3	3.1	4.1	3.3	3.6	2.9

Summary of the Averages for Five Periods (N = 118)

Periods	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6	Q-7	Q-8	Q-9	Q-10	Q-11	Q-12	Q-13	Q-14	Q-15
0	3.7	2.7	3.4	3.8	3.0	3.0	3.3	2.9	3.0	3.7	3.5	4.0	3.6	3.8	3.4
1	3.4	3.0	3.5	3.2	3.2	3.0	3.4	2.8	3.2	3.6	3.8	3.9	3.0	3.6	3.8
2	3.7	3.3	3.1	3.7	3.3	3.1	3.9	2.6	3.0	3.9	4.1	3.8	3.2	4.3	3.5
4	3.2	3.0	3.6	3.8	3.6	3.5	3.6	2.9	3.2	3.5	3.4	4.4	3.7	4.0	3.8
5	3.0	2.9	3.0	3.3	3.0	3.0	3.0	2.6	3.1	3.3	3.1	4.1	3.3	3.6	2.9
Average	3.4	3.0	3.3	3.6	3.2	3.1	3.4	2.8	3.1	3.6	3.6	4.0	3.4	3.9	3.5

Note. 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree. N = Number of respondents

Note. Questions 8 and 13 were weighted in reverse.

Table 4

Student Survey Responses Clustered with Research Questions for Average and Above Average Classes

Items by Cluster-Average Classes (1,2,4)											Items by cluster-Above Average Classes (0,5)											
	<u>N</u>	1	2	3	4	5	<u>M</u>	<u>SD</u>	<u>Min</u>	<u>Max</u>	<u>N</u>	1	2	3	4	5	<u>M</u>	<u>SD</u>	<u>Min</u>	<u>Max</u>	<u>M</u> <u>Diff</u>	
Learning contract helped to:																						
Set high academic goals																						
#5 to earn high grades	64	5	14	66	80	50	3.36	.51	5	80	54	7	14	66	64	10	2.98	.56	7	66	.38	
#11 could succeed	64	3	8	45	88	100	3.81	.70	3	100	53	2	16	57	72	30	3.34	.54	2	72	.47	
#14 signed up for an A	64	2	20	21	60	150	3.95	.93	2	150	53	3	26	3	52	115	3.75	.88	3	115	.20	
Keep organized with assignments:																						
#1 know what was planned daily	63	6	16	30	100	70	3.52	.63	6	100	54	7	8	39	96	30	3.33	.67	7	96	.19	
#3 better org. with daily work	66	7	24	30	100	60	3.35	.55	7	100	54	8	20	24	84	35	3.17	.55	8	84	.18	
#4 easy to find numbered activities	64	5	12	45	100	65	3.55	.61	5	100	54	5	12	21	104	50	3.56	.75	5	104	.01	
Motivate students to work:																						
#2 did more than required	63	3	32	48	92	25	3.17	.53	3	92	54	10	22	48	56	15	2.80	.38	10	56	.37	
#8 did not discuss assignments	64	40	52	39	32	14	2.77	.22	14	52	53	30	56	21	30	11	2.79	.32	11	56	.02	
#9 learned more about science	64	5	18	75	88	15	3.14	.60	5	88	53	5	22	48	56	35	3.13	.38	5	56	.01	
Learning Contract satisfaction:																						
#6 total points easier than grades	64	10	26	33	60	75	3.19	.41	10	75	54	12	24	18	56	50	2.96	.37	12	56	.23	
#7 felt good about my grade	64	4	16	36	96	80	3.63	.63	4	96	54	6	16	42	88	20	3.19	.61	6	88	.44	
#15 use learning contract again	64	7	6	39	80	105	3.70	.69	7	105	53	13	8	33	40	75	3.19	.50	8	75	.51	

(table continues)

Table 4

Student Survey Responses Clustered with Research Questions for Average and Above Average Classes

Items by Cluster-Average Classes (1,2,4)											Items by cluster-Above Average Classes (0,5)											
	<u>N</u>	1	2	3	4	5	<u>M</u>	<u>SD</u>	<u>Min</u>	<u>Max</u>	<u>N</u>	1	2	3	4	5	<u>M</u>	<u>SD</u>	<u>Min</u>	<u>Max</u>	<u>M</u>	
																						Diff
Preferred style for assignments:																						
# 12 inside the classroom	64	5	2	18	108	125	4.03	.94	2	125	53	3	2	21	72	120	4.11	.97	2	120	.08	
#13 outside the classroom	65	55	80	39	24	9	3.18	.42	9	80	53	65	72	24	22	3	3.51	.56	3	72	.33	
Special skills were NOT needed:																						
#10 to use the learning contract	64	6	10	24	128	65	3.64	.80	6	128	53	4	8	30	108	40	3.58	.79	4	108	.06	

Note. 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree. N= Number of respondents, M = Mean, SD = Standard Deviation, Min = Minimum, and Max = Maximum.

Note. 2 Questions 8 and 13 are weighted in reverse.

Parents' Survey Results

At the Parent-Teacher Conferences, the parents completed a survey regarding the learning contract (see Appendix F). Forty-eight parents completed the one-page survey. The number of parents responding to the survey represented 35% of the total number of parents. I tabulated the responses in Table 5. The parents noted their awareness of their child's learning contract grade (Q 1) as 89.58% for the first grading period. During the second grading period, the response fell to 68.75% (Q 8) of parents remembering their child's contracted grade. When asked if parents knew about science assignments, 70.83% (Q 6) of surveyed parents affirmed that they did. When asked if they felt their child succeeded in the first grading period, 62.50% (Q 3) responded positively. Regarding the question about discussions at home involving what takes place in the science classroom, 89.58% (Q 5) responded affirmatively.

Only 29.17% (Q 7) of the parents surveyed responded that they had special concerns regarding their children's educational efforts, 25.00% (Q 4) had questions about the learning contract, and 22.92%(Q 10) had additional comments. I organized the comments in a raw data matrix by survey question (see Table 6). Not all the parents who circled "yes" on the parent survey questions four and seven wrote in comments.

Some of the parents who picked up the pre-numbered survey forms either did not return them to me, or they ran out of time to see me. I did not use incomplete parent surveys in the data analysis.

Table 5**Responses to Questions on the Parents' Survey (N = 48)**

Question	% Yes	% No
1. Knew contract grade (first six-week)	89.58	10.42
2. Knew earned grade (first six-week)	89.58	10.42
3. Felt child was successful	62.50	37.50
4. Asked questions re: learning contract	25.00	75.00
5. Talked to child re: science class	89.58	10.42
6. Aware of science assignments	70.83	29.17
7. Special concerns	29.17	70.83
8. Knew contract grade (second six-week)	68.75	31.25
9. Signed contract (second six-week)	56.25	43.75
10. Additional comments	22.92	77.08

Table 6

Raw Data Matrix: Parents' Survey Write-In Comments

Learning contract questions (survey question 4)	Special concerns re: child's educational efforts (survey question 7)	Additional comments
"Is my child capable of making an 'A'?" (Parent survey 0-42) ^a	"Is my son talking?" (Parent survey 0-9)	"We are pleased with her progress. Don't hesitate to call me if needed." (Parent survey 0-25)
"What is it?" (Parent survey 1-43)	"He must always wear his glasses in class." (Parent survey 1-56)	
"Grade dropped for not doing required activity." (Parent survey 5-52)	"Attended William Ruffner Magnet School in Roanoke, VA during first half of school year during 6 th grade." (Parent survey 1-54)	
	"I want to know if he is trying, if he is handing in homework." (Parent survey 2-1)	
	"Do you feel she is doing well?" (Parent survey 2-17)	
	"I'd like her to contract for an A+." (Parent survey 4-5)	
	"Not all needed info in current science book." (Parent survey 4-51)	
	"Study habits—Does he turn all work in? Is he tried in class? Does he pay attention?" (Parent survey 4-16)	
	"Behavior." (Parent survey 4-15)	
	"Labs." (Parent survey 4-18)	
	Yes, I want her to do better, and I do (know) she can do better." (Parent survey 5-12)	
	"Improved from first six-weeks." (Parent survey 5-14)	
	"He needs to keep up with his RA and AA's not rely on his team captain to obtain them." (Parent survey 5-21)	

Note. ^a Parent survey number code (YZZ), Y = student's period, ZZ = prenumbered survey.

Answers to Research Questions from Data Collected

Twenty-four research questions guided the data collection from students, parents, and me, as teacher-researcher. In the next three sections, I explore each group of participants' responses to these research questions. To refer to the research questions, I use text boxes. Matrices display the supporting data as evidence of the findings, and a summary of points responds to information in numeric tables.

Students' Responses to Research Questions

Thirteen research questions directly linked to the seventh-grade life science students involved in the case study. I took responses to the research questions from the following six sources: (a) interviews with students (see Appendix H for transcripts), (b) an interview with me, the teacher-researcher (see Appendix G for transcript), (c) my grade book (see Appendix K), (d) students' survey responses (see Appendix J, Tables 3 & 4), and (e) the Final Grade Summary Sheet on which the students wrote responses to two questions (see Appendix C, Tables 12 & 13), and (f) the my research journal (see Appendix A).

In addition to the student survey questions, 52 students wrote in comments on the student survey in answer to the statement: "My story to share about my learning experiences in Science 7." These comments appear in the raw data matrices in Tables 7, 8, 9, 10, & 11.

1. Do learning contracts help students to learn?

Two student survey questions answered this question (Q 2 & 5). The student survey responses to question two (did more additional activities than required) had a mean score of 3.0, and question five (set goals to make high grades) had a mean score of 3.2 (see Table 3). I included additional data from the student learners in Table 7.

Table 7

Raw Data Matrix: The Relationship of Learning Contracts on Students as Learners

<u>1. Do learning contracts help students to learn?</u>	
Data	Data source
“Most of the time it (learning contract) pushed me to do the best that I could, occasionally it was too much.”	Student Interview 2 (Appendix H)
“Dear Mrs. Harmon, I have found that the contract has helped me a lot when I was using it. You have taught me to learn more about science and its concepts.”	Student Survey 406 ^b
“Mrs. Harmon did a wonderful job teaching. The learning contract helped tremendously. At any time we could find out our average and not bug the teacher. We always knew what we needed to get on a certain assignment to bring up our averages.”	Student Survey 409
“I learned a lot in science because of Mrs. Harmon’s wonderful teaching.”	Student Survey 410
“I tried hard but I didn’t do so well. She was a good teacher and helped me to do my RAs. I couldn’t really keep up that well but I still tried my best.”	Student Survey 414
“I did good in science more this year than any other year.”	Student Survey 415

Note. ^b Student survey number code (YZZ), Y = period, ZZ = student.

(table continues)

Table 7**Raw Data Matrix: The Relationship of Learning Contracts on Students as Learners**

<u>1. Do learning contracts help students to learn?</u>	
Data	Data source
“Science is cool.”	Student Survey 504
“I tried to do my best although sometimes it didn’t turn out right.”	Final Grade Summary Sheet 2005 ^c
“I made an A because I did my work. Next grading period I want to contract for an A+.”	Final Grade Summary Sheet 2009
“ (I was successful)...because I tried my best.”	Final Grade Summary Sheet 1223
“(I was not successful)...no because I got a C and I’m not happy with it. Next grading period ...(I plan to) try harder.”	Final Grade Summary Sheet 2221
“Yes, I was more than successful. I got an A+ because I did my homework no matter how hard it was.”	Final Grade Summary Sheet 1003
“I did what I was supposed to do.”	Final Grade Summary Sheet 1017, 2020
“I tried hard, and I succeeded.”	Final Grade Summary Sheet 1113
“I contracted for an A, did all that was required and a little extra, and I got what I contracted for.”	Final Grade Summary Sheet 1204

Note. ^c Final Grade Summary Sheet number code (XYZZ) X= grading term, Y = period, ZZ = student number (2005 = 2nd grading period, zero period, student 05).

(table continues)

Table 7**Raw Data Matrix: The Relationship of Learning Contracts on Students as Learners**

<u>1. Do learning contracts help students to learn?</u>	
Data	Data source
“Well...I just did not know what to expect. I wanted to make an A but got a B. Now I know what I am up against.”	Final Grade Summary Sheet 1408
“Because I wanted an A, and I worked hard to get it.”	Final Grade Summary Sheet 2214
“I tried to do a lot of AAs, and I studied for my tests.	Final Grade Summary Sheet 2018
“I got the grade I contracted for.”	Final Grade Summary Sheet 3512, 2009, 3122
“I did my homework this time.”	Final Grade Summary Sheet 1504
“I did what I needed to do so I did good.”	Final Grade Summary Sheet 2026
“I did better.”	Final Grade Summary Sheet 2124
“I’m going to do more RAs and AAs.	Final Grade Summary Sheet 2520
“I think number one, it gives them a goal. By contracting for the grade, it gives them a goal, something to work towards.”	Teacher-researcher interview (Appendix G)

Note. ^c Final Grade Summary Sheet number code (XYZZ) X= grading term, Y = period, ZZ = student number (2005 = 2nd grading period, zero period, student 05).

Students' Responses to Research Questions (continues)

2. Do learning contracts keep students organized and focused?

The student survey question three that deals with the learning contract keeping students better organized with daily assignments had a mean score of 3.35 with the average classes and a 3.17 mean score with the above average classes (see Table 4) and a combined mean of 3.3 (see Table 3). Table 8 displays additional data to support the survey findings.

3. What choices do students make with respect to grades?

Student survey question 14 answered research question three, "I signed up for an A more than any other grade for a grading period." This question received a mean of 3.95 from the average classes, a mean of 3.75 from the above average classes (see Table 4), and a combined mean of 4.0 (see Table 3). Overall, students contracted for an A more than any other grade for three grading periods in all five classes (see Appendix K, Tables K₁-K₅).

4. Do learning contracts improve student achievement?

5. Do learning contracts affect students' feelings about grades?

According to the information in Figure 3 and Tables 3 & 4, student achievement was inconsistent across the five periods of seventh-grade life science students. On an individual basis, students' achievement improved for those students who had never been successful in a previous science course. Students in the average grade group signed up for an A (mean of 3.95) more than the above average grade group (mean of 3.75) (see Table 4). Table 9 further supports these findings.

In reference to student survey question seven, "feeling good about my grades using the learning contract," the average grade group seemed satisfied (mean of 3.63) more than the above average grade classes (mean of 3.19) with respect to grades (see Table 4). In Table 3, the combined mean worked out to be 3.4. Both groups felt good about the grades they earned. In Table 9, the students' comments further support the findings.

Table 8

Raw Data Matrix: The Relationship of Learning Contracts on Students Being Organized and Focused

2. Do learning contracts keep students organized and focused?	
Data	Data Sources
“I was more organized in this class (such as) the contract, with the AA and RA. I knew what I needed to do, but that doesn’t mean I did it, but I knew.”	Student Survey 527
“I thought it was a pretty good idea. It helped us to keep track with what we were doing day by day and what our range (of topics) should be.”	Student Interview 1 (Appendix H)
“I thought that the learning contract was a little confusing.”	Student Survey 220
“I’d say, try to keep as organized as possible. That will make it easier to keep track of things, and get work in on time.”	Student Interview 2 (Appendix H)
“It kind of gave you an idea of what the semester or six weeks was going to be like. It is ...you know...whether you were a day ahead, a week ahead, or a month ahead and then it helped to consolidate many things into one.”	Student Interview 2 (Appendix H)
“I probably would work with a teacher that had a learning contract. because it would make it easier to do the work. It would be more uniform, more organized.”	Student Interview 2 (Appendix H)
“The learning contracts were very confusing at first, but later on they became a lot easier. I could keep track of my points (grades) and stuff.”	Student Survey 503
“Learning contracts are easier and you can keep track of your grades yourself.”	Student Survey 502

Table 9**Raw Data Matrix: The Relationship of the Learning Contract and Students' Achievement**

3. What choices do students make with respect to grades?	
Data	Data Source
“I felt that I could accomplish an A in that six-weeks period. I thought that the material that we were going to cover was going to be challenging enough that I could do it, that I could make an A”	Student Interview 2 (Appendix H)
4. Do learning contracts improve student achievement?	
Data	Data Source
“I did better than I would have done.”	Student Survey 105
“I found it very different in the techniques Mrs. Harmon used. It made it easier to make the grade I wanted and for my parents to see, which made them happy. Science 7 was a very good and successful year.”	Student Survey 519
5. Do contracts affect students' feeling about grades?	
Data	Data Source
“I felt that if I tried, I would stay where I wanted to be.”	Student Interview 1 (Appendix H)
11. Do students earn the grades for which they contracted?	
12. What grades do students contract for and why?	
Data	Data Source
“ I am also finding that students set very high goals for themselves...the majority of students have contracted for an A... and when they achieve that A then they are ready to sign up for another A.”	Teacher-Researcher Interview (Appendix G)

6. How do learning contracts affect students with different abilities?

The research population consisted of a diverse group of learners who individually contracted for grades (see Table 1). In response to the student survey question 11, able to succeed in making high grades, the average grade group had a mean of 3.81, and the above average group had a mean of 3.34 (see Table 4). The combined average for all periods equaled 3.6 (see Table 3). The learning contract afforded the opportunities to differentiate instruction for the mixed-ability students as well as those with learning differences.

7. How does the learning contract affect students' feeling about learning, self, content, and school?

I designed two student survey questions to respond to this research question. Question seven that asked the students about feeling good about their science grades had a combined mean of 3.4, and question 15, about using the learning contract again next year, received a 3.5 mean (see Table 3). The average grade group had a mean of 3.63, and the above average grade group had a mean of 3.19 for question seven. Question 15, using the learning contract again next year, resulted in a mean score of 3.70 and 3.19 respectively (see Table 4).

At the end of each grading period, the students completed a Final Grade Summary Sheet on which they did a self-evaluation of their learning achievements and commented why they succeeded or did not succeed in making their contracted grade. They further listed ways to improve their efforts for the next grading period (see Appendix C). Students who did not succeed in earning the grade for which they contracted expressed the following sentiments: “I did not complete the required activities” or “Well, I just did not know what to expect. I wanted to make an A, but I made a B. Now I know what I am up against.” Both of these students made an A next grading period.

Of the 258 students who wrote in comments on the Final Grade Summary Sheet, 136 earned their contracted grade, and 122 did not successfully earn their contracted grade. Of the students who achieved their contracted grade, 97 (79.5%) did all the assigned work, 12 (9.8%) did more than the required work, seven (5.7%) had a positive attitude, three (2.5%) did only those additional activities assigned, and three (2.5%) studied for tests. Of the students who did not make their contracted grade,

110 (80.9%) did not earn enough points, 14 (10.3%) had a poor attitude or did not care, seven (5.2%) waited too long to hand in assignments, and five (3.7%) did not understand the learning contract requirements.

In Table 10, the students expressed their feelings towards learning, self, content, and school.

Table 10**Raw Data Matrix: The Relationship of the Learning Contract and Students' Feelings About Learning**

How does the learning contract affect students' feelings about learning, self, content, and school?	
Data	Data Source
“I hated it, not to be mean, but I never could figure what to write on your contract. It was cheap because we did not get to dissect real frogs. Everything was on computer.” (Feelings about learning)	Student Survey 528
“I could have done better.” (Feelings about learning)	Student Survey 527
“My year in Mrs. Harmon’s class was fun anyway, I learned a lot. She did and had a lot of great techniques for this class. I give Mrs. Harmon moral support for the whole year. We may have had our differences but she never let that get in the way of learning science.” (Feelings about content)	Student Survey 527
“My year with Mrs. Harmon was a very exciting and interesting year. Science isn’t as bad as people make it out to be. Science is very interesting. It is cool doing labs.” (Feelings about content)	Student Survey 526
“Games are the best to play, it helps you to learn more about science, make it interesting and enjoyable.” (Feelings about learning)	Student Survey 502
“I liked going to the computer lab.” (Feelings about learning)	Student Survey 512
“I liked the animals in the classroom. I wanted to dissect a real frog.” (Feelings about content)	Student survey 509
“I think it (learning contract) was a new and good way to teach, and especially if the teacher thinks like Mrs. Harmon.” (Feelings about learning)	Student Survey 508
“It was interesting that’s for sure. I learned a lot.” (Feelings about learning)	Student Survey 507
“I wish I had done better. I really enjoyed the genetics session. I loved predicting the outcome of the mice.” (Feelings about self and learning)	Student Survey 505

(table continues)

Table 10**Raw Data Matrix: The Relationship of the Learning Contract and Students' Feelings About Learning**

How does the learning contract affect students' feelings about learning, self, content, and school?	
Data	Data Source
“You’ve been a fair, fun teacher. I’ve learned a lot. The labs were very fun and the animals are fun to work with.” (Feelings about learning)	Student survey 417
“Well I didn’t learn much because I was a talkative person. I knew I could do good but I didn’t really try. But she did a good job teaching. All the things she gave us helped.” (Feelings about learning and self)	Student survey 416
“I could have done a lot better if I wasn’t so rude and worked hard.” (Feelings about self)	Student survey 412
“I had fun this year.” (Feelings about learning)	Student survey 408, 017
“I loved the part of science we did about genetics. I liked the mice. Our paramecium regenerated while we watched.” (Feelings about learning)	Student survey 404
“Freddy, our paramecium, started regenerated right in front of us. It was really cool.” (Feelings about learning)	Student survey 403
“The learning contract is a wonderful thing for those students not advanced in science. For those that are (advanced) they find it annoying and slightly insulting. The fact that you can make a C on a test and still get an A is slightly annoying to those who get As (on tests). AAs are good for those not advanced in science, but I would prefer it if they were more optional. I got a B because I did not do enough AAs. Overall, I enjoyed my year in science and the subject matter and teaching were exceptional” (Feelings about learning, self, and content)	Student survey 221
“ The AAs were good except they shouldn’t have been required because they are additional. You shouldn’t have to do them if you don’t want to.” (Feelings about learning)	Student survey 219
“Additional activities helped me out a lot, even though I usually get good grades.” (Feelings about learning)	Student survey 218

(table continues)

Table 10**Raw Data Matrix: The Relationship of the Learning Contract and Students' Feelings About Learning**

How does the learning contract affect students' feelings about learning, self, content, and school?	
Data	Data Source
“I didn't really like this way (learning contracts). It was confusing and annoying. It's better with grades, not points. It's hard to tell what you need To make up and to keep your grades high enough.” (Feelings about learning)	Student survey 209
“I did not like the AAs.” (Feelings about learning)	Student Survey 204
“I think there could have been more extra credit.” (Feelings about content)	Student Survey 203
“I liked the fact that we did a lot of labs, but I think that we should have done less of them with microscopes and more with our hands.” (Feelings about learning and content)	Student Survey 121
“It was kinda fun.” (Feelings about learning)	Student Survey 119
“It was hard but I liked working with everyone and I loved most the labs.” (Feelings about self, learning, and content)	Student Survey 118
“I couldn't stand the RA and AA system, and I hated never being able to make up work I didn't do.” (Feelings about content)	Student Survey 107
“It was fun and interesting not including I learned a lot.” (Feelings about learning)	Student Survey 010
“I had a fun and learning experience in your class and will miss you over the summer vacation.” (Feelings about learning)	Student Survey 013

(table continues)

Table 10

Raw Data Matrix: The Relationship of the Learning Contract and Students' Feelings About Learning

How does the learning contract affect students' feelings about learning, self, content, and school?	
Data	Data Source
<p>“I could not keep up with assignments because I needed help and got behind but I think that some is my fault.” (Feelings about learning and self)</p>	Student Survey 411
<p>“I am glad you were my teacher and nobody else. I liked the way you did the RAs and AAs, and I am glad you did not leave until I finished the seventh grade.” (Feelings about content)</p>	Student Survey 407

Students' Responses to Research Questions (continues)

Students who earned the grades for which they contracted wrote such comments on the Final Grade Summary Sheet as: "I was successful because I had 135 points more than I needed" or "because I did all my homework and turned it in on time and did more additional activities than I needed" and "I tried hard and I succeeded."

8. What skills and abilities are needed by students working on learning contracts?

The student survey question 10 (did not need any special skills to use the learning contract) addressed the issue of special skills. In average grade groups, the mean equaled 3.64, and for the above average group, the mean was 3.58 (see Table 4). The combined mean for question 10 was 3.6 (see Table 3). Therefore, the students needed no special skills and abilities to use the learning contract. "Learning contracts are easier and you can keep track of your grades yourself" (Student survey). "You didn't need any special skills to work with the learning contract" (Student 1 interview, Appendix H).

9. How do teams work on learning contracts? Why?

In one student interview, the student responded to this question with: "I think that I liked working as a team. If you did not understand, then you could ask your neighbor and maybe he or she could explain it better" (Appendix H). On the student survey question 12, which referred to working in teams in the classroom, both grade groups scored the highest mean with 4.03 and 4.11 (see Table 4). In Table 3, the combined mean was 4.0. Students preferred to work in teams as opposed to working individually because of the ability to share ideas, resources and opinions among their peers. "I liked doing worksheets in class with my team. I wouldn't rush through it as much as I would at home to get it done." (Student survey)

In Table 11, I display the students' reflections about working together with a team.

Table 11**Raw Data Matrix: The Relationship of the Learning Contract and Students Working in Teams**

<u>9. How do teams work on learning contracts? Why?</u>	
Data	Data source
“I think that I liked working as a team. If you didn’t understand, then you could ask your neighbor and maybe he or she could explain it better.”	Student Interview 1 (Appendix H)
“I think it gave it a kind of interesting twist because (it gave, you know) you could talk about your assignments with your friends or team, and they could help you out or something if you really needed help or if the teacher was busy, and just like critiquing each other.”	Student Interview 2 (Appendix H)
“Work with a group that you can do well with. Set goals that work for you.”	Student Survey 502
“I liked the projects where you worked with one other partner.”	Student Survey 101
“I further explained that required activities were team oriented, and they would work together in class to start these assignments.”	Researcher’s Journal (Appendix A)
“Working with my team has helped me to learn how other people think.”	Student Survey 213
“I enjoyed most of my classmates so I was able to work well with them and I think that is why I made excellent grades.”	Student Survey 212
“I have seven teams of students, usually I will have the team work with a student that is really lost, and by the end of the period they are caught up. I guess that the team (members) wants to keep up. You know its very cohesive.”	Teacher-Researcher Interview (Appendix G)

(table continues)

Table 11

Raw Data Matrix: The Relationship of the Learning Contract and Students Working in Teams

<u>9. How do teams work on learning contracts? Why?</u>	
Data	Data source
“I liked doing worksheets in class with my teammates.”	Student Survey 503
“I liked projects that was done with one other partner that we got to choose. Not the group biome project.”	Student Survey 102
“Group projects are not fair to all members.”	Student Survey 211

Students’ Responses to Research Questions (continues)

10. How do individual students work with a learning contract? And Why?

On the student survey, question 13 asked the students if they liked working alone on assignments outside the classroom. I scored this question in reverse. A combined mean of 3.4 reflected that students did not like to work alone on assignments outside the classroom (see Table 3). The average grade group had a mean of 3.18, and the above average grade group had a mean of 3.51 (see Table 4).

Student survey question 12 asked about students working with teams. Students favored teamwork over working individually in both grade groups with means of 4.03 and 4.11 respectively (see Table 4). The combined mean totaled 4.0 (see Table 3).

11. Do students earn the grade for which they contract?

On the student survey question 14, the students signed up for an A more than any other grade. The average grade group had a mean of 3.95, and the above average grade group had a mean of 3.75. The combined mean for student survey questions 14 added up to 3.9 (see Table 3). Table 12 lists the data from the Final Grade Summary Sheet (Appendix C), in which students unsuccessful in earning their contracted grade wrote their reasons. Students who earned their contracted grade listed the reasons why they succeeded in Table 13.

Table 12**Raw Data Matrix: Students' Reasons for Not Earning the Learning Contract Grade from the Final Grade Summary Sheet for Three Grading Periods**

"I didn't do enough RAs."(3001)	"I didn't do AA #6, required for an A."(3002)
"I didn't do all the required and my points were low." (2410)	"I slacked off a lot and didn't try hard enough." (3012)
"I missed a lot (of school) and didn't keep track on contract." "Absent and did not do work." (3016)	"Because I didn't do my work." (3105)
"I did not do a lot of AAs."(3112, 3106)	"I got an F on both tests." (3217)
"Did not do enough work." (1118, 3401)	"Didn't do enough AAs. Now I know." (3403)
Didn't do all the work I was supposed to."(2516)	"Because I didn't finish some assignments and because I didn't get enough help from the teacher." (3501)
"Because I am lazy." (3211)	"I didn't try hard." (2401)
"Did not turn in two AAs." (1015)	"I did not get enough points, thirty-four points from an A." (1021)
"I didn't turn in paper." (3513, 2125)	"I didn't have time. Plus I didn't feel like it, and I don't like this school, so I'm going to flunk everything 'til my Mom takes me out." (2222)
"I didn't record some things on my progress sheet." (1218)	"I set my goals too high." (2506)
"I did not understand what to do, but now I do."(1512, 2224)	"I didn't get a passing grade on tests."(1502)
"All I need is one more point please, Mrs. Harmon." (2102)	"I didn't understand the work."(2224)
"Unorganized." (2511, 3102)	"Because I waited too long." (3004)

Table 13**Raw Data Matrix: Students' Reasons for Earning the Learning Contract Grade from the Final Grade Summary Sheet**

“I got an A+. I went over my expectations. I did all required AAs.”(2416)	“I did all my RAs and did a lot of AAs. I did my homework.”(2526)
“I contracted for an A, and I did so well I got an A+.”(1510)	“Because I tried my best.” (1017)
I got an A+. I can do the same next six-weeks.” (2206)	“I did good enough for me.” (3107)
“I did better.” (1205)	“Because I did what I needed to do, so I did good.” (2012)
“I made an A because I did the work.” (2020)	“Because I wanted an A+ and I worked hard to get it.” (1516)
“I contracted for an A, did all that was required and a little extra, and I got what I contracted for.” (2005)	“I did my work this time.” (1008)
“I did all of the RAs and AAs. I did all of my homework. I kept up with my grade: whether I needed more AAs or not.” (1510)	“Because I turned in all assignments.” (2004)
“Because I did all the work I was required to do and I did it well.”(1221)	“I worked pretty hard and I tried to do a lot of AAs.” (3011)

Students' Responses to Research Questions (continues)

During my interview I discussed the question regarding signing up for grades. I made the following comments: “I am finding that students set high goals for themselves. The majority of students have contracted for an A, and when they achieve that A, then they are ready to sign up for another A. The kind of student that does not make that A, they are not as eager to sign up for another A, so they come down a notch saying ‘ I couldn’t get it last time, I probably won’t get it this time’” (Appendix G, lines 165-168, p. 163).

12. What grades do students contract for? And Why?

According to the student survey responses and the tables of grades for three grading periods, students contracted for an A more than any other grade (see Table 3 & 4, & Appendix K). The students said that they contracted for an A because it made their parents happy. “It (learning contract) made it easier to make the grades I wanted and for my parents to see, which made them happy and made me feel good. Science 7 was a very good and successful year” (Student survey).

13. Are contracts preferred by some students but not others? Why?

The average grade group’s responses to student survey question 15 (to use the learning contract again) had a mean of 3.70; while the above average group had a mean of 3.19 for the same question (see Table 4). The average grade group’s responses were more positive than the above average group. The combined mean reported as 3.5 (see Table 3).

In order to achieve an A, the student would have to complete a greater amount of work than the amount required for a B. Because of the grade requirements, many students thought that they could come close to the required points and still get the higher grade, but that did not happen. I strictly adhered to the contract guidelines. All of the grade requirements had to be completed fully or the contracted grade was not earned (see Chapter 3).

Also, students contracted for high grades because they felt that they could be successful (see Tables 7, 8, 9, 10, 11, & 13). On the student survey, the students had an opportunity to write in comments or share a story about their learning experiences in science. One student replied: “I did good in science more this year than any other year.” A gifted student replied: “The learning contract is a wonderful thing for those students not advanced in science. For those that are, they find it annoying and insulting. The fact that you can get a C on your tests and still make an A is slightly annoying to those that get A’s. Additional activities are good for those not advanced, but I would prefer it if they were more optional. I got a B because I didn’t do enough additional activities. Overall, I enjoyed my year in science and found the subject matter and teaching exceptional.” and “I did better than I would have did” (Students’ surveys).

Parents' Responses to Research Questions

In order to get feedback from the parents, I developed three research questions. The 48 parents who participated in the survey represented 35% of the total parents. I reported their responses as percentages for “yes” and “no” answers to questions. The percent responses can be located in Table 5, and Table 6 includes the parents' write-in comments. I used the responses from the parents' survey to answer the research questions that follow.

14. Do parents check on their child's progress?

Of parents surveyed, 89.58% reported their awareness of their children's grades in science, while 10.42% did not know their children's grade for the first grading term. For the second grading term, only 62.50% of parents knew their children's contracted grade; while 37.50% did not. Parents also agreed by 89.58% that they discussed science assignments and classroom discussions with their children at home on a regular basis. By signing the students' learning contracts for three grading periods, the parents expressed their awareness of their students' contracted grade (see Table 5).

15. How supportive are parents of their child's work on the learning contract?

According to the parent survey, 89.58% of the parents discussed science with their children either daily or weekly (see Table 5). One parent commented that she enjoyed learning more about science with her daughter. In talking with them as a group, they seemed to support their children's learning experiences in science with the learning contracts (personal conversation with parents at Parent-Teacher Conference).

16. Are Parents aware of the grade for which their child contracts?

According to the responses from the parents' survey, the parents showed awareness of their children's contracted grade more during the first grading period with 89.58% than the second grading period, where it to 68.75% (see Table 5).

The parents who grew up in the neighborhood and who had children enrolled previously, had some familiarity with the learning contract because the former teacher had used it for over eighteen years (former teacher, May 2000, personal communication). Perhaps, as a result, only 25.00% of those surveyed had questions about the learning contract (see Tables 5 & 6).

Teacher's Responses to Research Questions

I used the following four items as data sources: (a) my research journal (see Appendix A), (b) the taped interview responses from students and me, the teacher-researcher (see Appendix H & Appendix G), (c) the student survey responses (see Appendix J, and Tables 3 & 4), and (d) the Final Grade Summary Sheet with student answers to the questions (see Appendix C, Tables 12 & 13). The next set of research questions related to the resource teachers and me.

17. How do learning contracts affect teacher planning?

During the interview with my Professor, he recorded the following comments concerning teacher's planning: "My planning has changed a lot. With the learning contract, I can get a wider scope on what I want to accomplish. ... with the learning contract, what I am finding is that with longer chunks of time, I am more effective because I am able to cover that material because it is planned out. I feel that I am a better planner. I feel that my organizational skills are sharper because I know what is coming up in the future and how I need to get the students ready for this new plan or concept." (Appendix G, lines 369-374, p.173).

18. How do learning contracts affect the teacher's role in the classroom?

In my interview, I stated that my role as the teacher had switched from a "fountain of knowledge" to a "facilitator of learning." The students had become more responsible for their learning experiences in the classroom. "I am finding that I still have the flexibility to be creative and original and still stay within the parameters that I have laid out. I am finding that my students want to know what we are doing on a daily basis ... and where we are going in this sequence of topics." (Appendix G, lines 140-143, p. 161-162).

19. What changes were made to the contract during the contract period with respect to modifications, additions, and points?

During the three grading periods, a total of 28 modifications and additions were made to the learning contract. These included double points, Cell Bingo, edible labs, hands-on lab practicals, open house orientation, new additional activities, revised required activities, Final Grade Summary Sheet, computer technology, demonstrations, habitat observations, and computer labs and worksheets for

mitosis. I discussed these items in Chapter 5 in greater detail. In the beginning of the first grading period, I added six new additional activities to the first learning contract as an incentive for the students to comply with the assignment (see Appendix A, 1st Grading Period, Week 2, Day 1).

20. How has student input regarding the contract affected the teacher's attitude towards the contract?

Students' responses to student survey question 15 about using the learning contract again for the next school term registered as mostly positive. Question 15 worked out to a mean of 3.70 from the average grade group and a mean of 3.19 from the above average grade group (see Table 4). The mean for all five classes was 3.5 (see Table 3). The write-in comments on the student surveys helped finalize my impressions about the learning contract. "...I was more organized in class with the learning contract...I learned a lot" and "I have found that the learning contract helped me when I was using it." and "(the learning contract) helped me learn to understand science and its concepts." Not all students shared the same sentiments. One student commented, "Mrs. Harmon, I think that you should not do this system anymore. It's too complicated and you always end up changing the points for the RAs. If you do stay on this system you should keep the points on the RAs the same as it says on the (learning) contract" (Students' survey) (see Tables 7, 8, 9, 10, 11, 12, & 13).

21. How time intensive is the grading component of the learning contract?

The grading component of the learning contract involved a daily recording of required activities' points. On some days, I collected points from two or more required activity assignments. I recorded the required activities separately from the additional activities in my grade book. From my research journal, my comments regarding the activities include:

"Today we checked RA # 9-10-11-12. All very short assignments and I tried a new way of collecting points by submitting only one sheet with all RA points. This new way made it possible for the students to keep and use their RAs to complete the next assignment, RA # 13, Chapter Review" (see Appendix A, 2nd Grading Period, Week 3, Day 4).

"Students received their graded papers back today to record on their Student Progress Sheets and by Thursday, hopefully all papers will be returned. I had over 20 students absent today...too close to holiday break" (see Appendix A, 3rd Grading Period, Week 3, Day 2).

“The new AAs (5-8) due 1-12 were made available and students were given the choice of working on the AAs or catching up on missing assignments. More than 50 absences were recorded that last week before holiday break...an extension until 1-9 for make-up work should catch everyone up” (see Appendix A, 3rd Grading Period, Week 4, Day 1).

In the middle of the third grading period, I stopped the double entry of my grades and I changed over to entering both RA and AA points in the computer program called Grade Machine.

“This six weeks I have used the computer program, Grade Machine, to record all grades as they are turned in to me...it has sped up the (grading) process. I have eliminated writing the grades (points) in my grade book first. What a difference.” (See Appendix A, 3rd Grading Period, Week 4, Day 2) I definitely saw an improvement on time spent grading and recording.

Because of the high volume of the additional activities turned in, I recorded those points weekly. By using the students to self-check and correct their work, I only needed to look over the assignments for verification of points and then record the points in my grade book. This routine had its high and low points, as one can see from my comments in my research journal that follow.

“First AA check day...the students did all 10. They really were enthusiastic and cooperative with the checking routine” (see Appendix A, 1st Grading Period, Week 2, Day 5).

“This is the last day for all work. I am really behind on my grading. I need two more days!” (see Appendix A, 1st Grading Period, Week 6, Day 5).

22. How do the resource teachers use the learning contract with students with learning differences?

The resource teachers checked the agenda on the blackboard in the science room on a daily basis to keep their students on track with the learning activities and assignments. They checked with me when they had questions or when they needed help. At the beginning of each new grading period, the resource teachers received a new learning contract along with the students.

On Friday, I sent out a student progress report on each student that worked with the resource teachers with an up date on their assignments, behavior in class, test scores, and write- in comments. This checklist form, created by the resource teachers for me, listed several students on the same form.

23. How does the teacher help students keep up with assignments and due dates with the learning contract?

A minimal turn around time on this form allowed these students the opportunity to get extra help on the learning contract activities from the resource teachers.

I helped students with due dates by posting them on the blackboard along with the daily agenda. I also designated assignments as HW (homework) or CW (class work). I reminded the students of their responsibility to read all messages on the blackboard. After greeting the students, I reviewed the information for the day from the blackboard and answered any questions from the students. Since all of the required activities and the additional activities could be found in the learning contract, students had a reference to get more information about an assignment. By posting the assignments on the blackboard with the agenda, I could check for understanding with the students, and they could copy assignments directly into their planner or assignment notebook. The students could write on their learning contracts, check off the required activity due, and add a date beside its number on the line. From my comments on how this routine worked on a daily basis, the students seemed to catch on easily.

“Most students working up to their expectations. A very few still have not contracted for a grade or gotten parents to sign. I walked around today to visit those few (students). New AAs all from our textbook so should be more successful with finding answers. I plan to go to Kinko’s to make a large poster of this six-week learning contract points for each grade and tell the students how many have contracted for each grade” (see Appendix A, 1st Grading Period, Week 2, Day 1).

“All classes worked on RA # 12, Metric Measurement Lab, and students are beginning to ask by # due dates for RAs and AAs. This is a new development, since prior to this week the students expected me to announce or post due dates. The responsibility for assignments is beginning to show. We had a good day and I enjoyed walking around to each of the seven teams to check on their data collection and metric conversions” (see Appendix A, 1st Grading Period, Week 4, Day 5).

As one can see from excerpts of my research journal from each of the three grading periods, adding a new dynamic assignment did not disrupt old routines. New posters and the introduction of the Final Grade Summary Sheet enhanced the learning environment.

“I posted a new homework poster for those that forgot to check blackboard for assignments. Still working on reinforcing good classroom routines. This (good classroom routine) will pay off in the long run.” (see Appendix A, 1st Grading Period, Week 5, Day 3).

“Final Grade Summary Sheets were completed and students analyzed their work for the first grading period of six weeks. Students were asked if their final grade was the same as their contracted grade and to comment on their success in attaining their grade goal (Why or Why not?)” (see Appendix A, 2nd Grading Period, Week 1, Day 2).

“Students continue to hand in signed learning contracts for the third grading period. I plan to visit Kinko’s this weekend to make up a blue poster of the new learning contract for the class bulletin board. So far this (poster) has been a most helpful visual aid both for me and for the students” (see Appendix A, 3rd Grading Period, Week 1, Day 5).

I made myself available to work with students before and after school, as well as during class times. Make-up work became the student’s responsibility, and the learning contract helped since each assignment had a number and a description.

Not only a structure for learning, the learning contract also served as an important goal-setting tool. The following comments from my research journal support this idea:

“A learning contract helps students to set goals. I helped them set a goal for a six-week period of time, so it is a realistic time period. It allows the students to feel good about what they want to accomplish, because they have everything up front. I’ve had students come in and say ‘Mrs. Harmon, I didn’t have any homework last night, so I did the next RA.’ I’ve had more students come to me with ‘I’ve gone ahead (with assignments) because I know what I need to do, and I’m working ahead.’” And “Students that go out of town or students that have prearranged absences, they know up front if I say that we are going to cover RA # 10 and RA #11 while you are gone. (Then) it’s done (by the time they return to class)”(see Appendix G, lines 405-410, p. 175).

24. As a result of this case study, will the teacher-researcher continue to use the learning contract?

After summarizing and reviewing the data from: (a) the student survey responses, (b) my Research Journal, (c) the Final Grade Summary Sheets, (d) the interviews from students and me, and (e) the parent survey responses, I support the use of the learning contract for the next school term.