CHAPTER VII
CONCLUSIONS, DISCUSSION, FUTURE RESEARCH, AND RECOMMENDATIONS

Conclusions

The two purposes for conducting my case study included: (a) to describe how learning contracts were implemented in a seventh-grade life science class during the 1997-98 school term, and (b) to discover how the learning contract affected the students’ learning experiences. I took my final conclusions for the case study from the data collected from the following sources: (a) students’ grades for three grading periods, (b) students’ and parents’ survey, (c) the interviews from students and the teacher-researcher, (d) the Final Grade Summary Sheet, and (e) the Researcher’s Journal.

The research questions developed at the beginning of the case study aligned with the data collected in graphs, spreadsheets, and raw data matrices in Chapter 6. In this section, I summarize the conclusions from the research questions, compare the results to the findings of other researchers, discuss the conclusions with possible sources of error, disclose plans for future research, and propose final recommendations about the learning contract. I divided the research questions among the three groups of participants: (a) students, (b) parents, and (c) the teacher-researcher.

Research Questions for Students

The 13 research questions for the students focused on five main ideas: (a) goal setting to earn high grades, (b) organization skills as a learner, (c) motivation to do the work, (d) self-esteem and feeling good about learning, and (e) development of a learning style preference (see Table 2). The following section discusses the conclusions for the research questions for students.

Goal Setting to Earn High Grades

The seventh-grade students’ contracted for an A more than any other grade for the three grading terms in all five classes (see Appendix K). By setting high goals, the students had to produce a great amount of work in the classroom. Assignments had to be completed, and they had to participate in the different laboratory exercises and the computer activities. The average grade group had a higher mean than the above average group for goal setting (see Table 4). Many of the above average students had been given the title “gifted” and assumed they could
make good grades by testing well. The learning contract grade requirements forced the gifted students to produce written evidence of learning through the required activities and especially the additional activities. The learning contract’s requirements forced the gifted students, who might be considered academically lazy, to be productive on a daily basis rather than demonstrating their high test-taking abilities on occasion (see Tables 7 & 9).

I included the special-needs students with the average grade group in periods 2, 3, and 4. They felt that the learning contract requirements could be attained and that they could be successful by setting high academic goals (see Table 4).

The average grade group students felt that they could succeed and earn their learning contract grades. Their responses on the student survey registered as more agreeable than the above average group’s responses (see Tables 4, 7, & 9).

Organizational Skills as a Learner

As a whole, both groups of learners found it easy to find the learning contract required and additional activities, be better organized with daily work, and keep up with daily assignments. The average grade group’s responses agreed more about each of these three items than the above average grade group (see Tables 4 & 8).

Motivation to do Work

In order to achieve their learning contract grades, the students had to be motivated. If the students had to have a minimum of 150 additional activity points to earn an A, then they needed to do more than expected. The average grade group had a higher mean to the survey response about doing more than expected, and the above average group had the lower mean (see Table 4).

The idea of not discussing assignments outside the classroom received the lowest mean in all the classes. I weighted this survey response in reverse. The low mean reflects that students did not talk about assignments outside the classroom (see Table 4).

Both grade groups felt they had learned about life science while using the learning contract, and they needed no special skills to use the learning contract (see Tables 4, 9, & 10).

Self-Esteem and Feeling Good about Learning

The write-in comments on the students’ surveys regarding their learning experiences gave evidence to support the students’ feeling on self, content, learning, and about school (see Table 10). The average grade group agreed more with the value on the contract than the above
average group on the students’ survey; however, from the write-in comments, both groups expressed strong feelings about making good grades, the variety in subject materials, e.g. mice genetics and lab activities, and the recommendation to use the learning contract again for the next school year (see Table 4).

**Development of a Learning Style Preference**

The student survey questions about students’ preferred learning style for doing assignments alone outside the classroom or with a team inside the classroom received the more agreeable response from the above average grade group (see Tables 4 & 11). These students needed the team interaction to satisfy their learning style preference (see Table 11 & Appendix H).

Table 14 summarizes the research questions for students as a report card showing positive evidence (yes), negative evidence (no), or inconclusive evidence as outcomes from the data discussions in Chapter 6.

**Research Questions for Parents**

I wrote three research questions to get information from the parents (see Table 2). I collected information to answer these research questions from the parents’ survey. The parents’ responses supported my efforts in the classroom. As a result, the lines of communication between the parents and me made for an open exchange of meaningful information (see Tables 5 & 6). In this section, I summarize the parents’ conclusions.

**Checked on Child’s Progress**

The fact that the students discussed science at home along with the assignments helped to improve their students’ success in the classroom, and it gave the parents an opportunity to talk with their child. With the students keeping a record of the points earned on activities, the parents could monitor their child’s progress for themselves (see Tables 5 & 6).

Parents also served as good role models for their children by keeping up with classroom activities, and they helped by working alongside their children to check assignments (see Tables 5 & 6).
Table 14

**Report Card for the Learning Contract from Students’ Research Questions**

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Yes</th>
<th>No</th>
<th>Inconclusive</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do learning contracts help students to be better learners?</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>2. Do learning contracts keep students organized and focused?</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>3. What choices do students make with respect to contracted grades?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Do learning contracts improve student achievement?</td>
<td></td>
<td>X</td>
<td></td>
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<tr>
<td>5. Do learning contracts affect students’ feelings about their grades?</td>
<td></td>
<td>X</td>
<td></td>
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<tr>
<td>6. How do learning contracts affect students with different abilities?</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>7. How does a learning contract affect students’ feelings about learning, self, school, and course content?</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>8. What skills and abilities do students need to work with learning contracts?</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>9. How do student teams work with a learning contract?</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>10. How do individual students work with a learning contract?</td>
<td>X</td>
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</table>

*(table continues)*
### Table 14

**Report Card for the Learning Contract from Students’ Research Questions**

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Yes</th>
<th>No</th>
<th>Inconclusive</th>
</tr>
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<tbody>
<tr>
<td>12. Do students earn the grades for which they contracted?</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>13. Are contracts preferred by some students and not by others?</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Aware of Child’s Contracted Grade

The parents’ surveyed stated their child’s learning contract grade for the first and second grading periods. Parents had high expectations for their child, supported them in their goals, and encouraged them to be good students (see Tables 5 & 6).

Supported the Child’s Learning Contract

The learning contract was a written agreement between the teacher and the student, but I involved the parents by getting them to sign their students’ contracts. By involving the parents in the learning contract cycle every grading term, it established the link between home and teacher in the classroom. It gave the parents an opportunity to work with their children and keep up with their progress in the science classroom (see Tables 5 & 6).

Table 15 summarizes the research questions for parents as a report card showing positive evidence (yes), negative evidence (no), or inclusive evidence as outcomes from the data discussion in Chapter 6.

Research Questions for Teacher-Researcher

I developed eight research questions for the resource teachers and me (see Table 2). In this section, I summarize the conclusions.

Contract’s Effect on Teacher’s Planning

As a result of the learning contract, I planned for more meaningful classroom activities, and I worked to help my students achieve their academic goals. The learning contract made planning easier because it represented a large amount of time and gave me a reference point to look ahead or to look back. It helped immensely with my organizational skills (see Appendices A & G).

Contract’s Effect on Teacher’s Role in the Classroom

My role in the classroom switched to a facilitator of learner, and I learned to individualize instruction for the mixed-ability learner. As a facilitator, I had more opportunities to circulate among my students and work with them. I became more available (see Appendices A & G).

Changes to the Learning Contract

I modified the learning contract to meet the needs of the students. These changes updated the curriculum, increased points for assignments, or adjusted the total number of points at the
Table 15

Report Card for the Learning Contract from Parents’ Research Questions

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Yes</th>
<th>No</th>
<th>Inconclusive</th>
</tr>
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<tbody>
<tr>
<td>14. Do parents use a learning contract to monitor their children’s progress?</td>
<td>X</td>
<td></td>
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<tr>
<td>15. How supportive are parents of their children’s learning contract?</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>16. Are parents aware of the grades for which their children contract?</td>
<td>X</td>
<td></td>
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</table>
end of a grading period. All of the modifications enhanced the learning environment and gave the students a variety of learning opportunities (see Appendix A & Chapter 5).

**Students’ Comments Effect on the Teacher-Researcher’s Attitude towards the Learning Contract**

Based on the student survey responses to question 15 to use the learning contract again next year, the responses from the interviews with students, the write-in comments on the student survey, and the Final Grade Summary Sheets, I recommended that the learning contract be used again the next school year (see Tables 3, 4, 7, 8, 9, 10, 11, & 13, and Appendix H).

**Time Intensity and the Grading for a Learning Contract**

The grading time for the required and the additional activities had to be a daily commitment. I improved my turn around time by using the computer and by having the students self-check the assignments. It remained time intensive because of the daily commitment (see Appendices A & G).

**Resource Teachers and the Learning Contract**

The resource teachers worked with the special-needs students to complete their learning contract assignments. They communicated daily with me, and they supported the learning activities in the science classroom (see Chapter 4 & Appendix A).

**Teacher’s Help with Assignments and Due Dates**

I used classroom visual aids to help students keep up with assignments and due dates. The blackboard messages served as daily reminders (see Appendix A, Chapters 4 & 5).

Table 16 summarizes the research questions for the resource teachers and me, the teacher-researcher, as a report card showing positive evidence (yes), negative evidence (no), or inconclusive evidence as outcomes from the data discussions in Chapter 6.

**Discussion of Results and Findings**

One of the most difficult tasks for me was to show no bias in the assessment of the learning contract. Working with the students on a day-to-day basis, many of the perceptions and stories about the students were not always documented in the research journal. Much of the daily exchange of feelings between the students and me also became difficult to put on paper as a record of happenings. Those events, which left the impressions worth noting, have been documented for later impressions and feedback. The perception, that the learning contract
<table>
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<th>No</th>
<th>Inconclusive</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. How does a learning contract affect the teachers’ planning?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. How does a learning contract affect the teachers’ role in the classroom?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. What changes or modifications were made to a learning contract during a grading period with respect to assignments and points?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. How does student input regarding a learning contract affect the classroom teacher’s attitude towards a learning contract?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. How time-intensive is the grading component of a learning contract?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. How do resource teachers use a learning contract with students with learning differences?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. How do the teachers help students keep up with assignments using a learning contract?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. As a result of this study, will the teacher-researcher continue to use a learning contract?</td>
<td>X</td>
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</table>
helped to make the Science 7 learning experiences a positive event for the students, lasted throughout the contracted year.

In examining the reactions of all of the seventh-grade life science students to the learning contract, they exuded a positive overall perception. Students, expected to be on task daily, were challenged by the diversity of learning materials and teaching strategies. They had many choices of activities to help achieve their learning contract grade and several ways to learn more about life science (see Appendices A & G).

Special students, mainstreamed for life science, were academically suited for this form of structured learning. The students’ resource teachers had familiarity with both the learning contract and the assignments, which established a cohesive bond between teachers and students. Resource teachers on a daily basis checked the assignment agenda for class and communicated the assignment to their prospective students (see Chapter 4).

Channels of communication became one of the strongest links among students, teachers, and resource teachers. The students’ ability to work together in a cooperative nature and in turn accept the responsibilities for their assignments and the learning environment, put them on the road to becoming life-long learners.

Gifted students generally felt they could make good grades with or without the learning contract. Some of these students were not convinced that the learning contract helped with their learning style. Other students felt the learning contract forced them to do more work so that they could achieve the contracted grade.

When I divided the data from the student surveys into the two grade groups, the above average grade group’s responses were less agreeable in 11 of the 15 scoring categories. Period zero and period five had the most above average learners, therefore, the original reason for the grouping. These findings might support the gifted students’ academically lazy attitude towards completing learning activities, especially the additional activities.

Another consideration with respect to the formation of the two grade groups and the differences in their responses could be gender related. Zero period, which had the highest cumulative grade point average for all three grading terms, also had the highest number of girls at 19. Fifth period had 16 boys and 10 girls. The other three periods, first, second, and fourth,
had an equal distribution of males and females (see Table 1). The sample size for the two grade groups being 64 versus 54 might have made a difference in the calculated means.

Response to question eight about students never talking about assignments surprised me. I did not expect such a reply from the students. I scored the question in reverse, with positive agreement at the lower end of the numbers. Talking about homework might not “be cool.” At this age, maybe the need to talk about schoolwork was not deemed necessary. Possibly, the question as it was worded confused the students since this question was the only negative question asked.

The variety of learners in the case study made the information discovered from the data collected a valuable reference. The students as learners showed they could be responsible for the learning activities and take responsibility for making choices for enrichment activities, such as additional activities. They set high academic goals, and they continued their journey to becoming life-long learners.

Future Research

At the end of the three grading periods, I took the opportunity to reflect on other vehicles for data collection that I could use if I were to expand my research. The following section explains other ideas.

Student Journals

The research journal kept by me, the teacher-researcher, proved invaluable as a reference for the case study. A student journal to record their feelings about science assignments or to reflect on various methods of instruction using the learning contract may prove beneficial for future research.

Student Portfolios

A collection of the students’ work for each grading period with a short reflection by the students about its significance to the learner could yield additional information about what works well with the middle school population. These student portfolios, as exhibits, could be incorporated into the end of year learning contract along with a scoring rubric and thought-provoking questions. A possible research question could be “How do students use a portfolio to document their learning experience while using a learning contract?”
Length of Study

The case study data were collected over three grading periods. Future research would extend that time frame to include an entire school term and obviously, more time would generate more data to be analyzed.

Ways to Improve Data Collection and the Learning Contract

In the future, I could use a software package that includes a voice to type modification so that the students’ stories about their day-to-day experiences in science could be added to the research data. As earlier stated, I could not possibly include all student interactions in my research journal. I could make modifications to the learning contract before distributing them to the students so as to eliminate any confusion that may have occurred due to such changes. The modifications to the number of points for an activity caused the most disruptions with the students. The changes to the learning contract need to be made prior to handing them out to the students at the beginning of each grading period.

Applications to Other Grade Levels

Although I collected the research data with seventh-grade students, realistically it can be assumed, based on the findings from the literature review and my case study, that this teaching strategy can be used at any level, in any classroom, for any duration of time, with success for both the teacher and the students. The data shows that this kind of grading puts all students on an equal basis. Because of the learning contract’s flexibility and method of de-emphasizing tests, any student has the opportunity to earn a high grade.

Recommendations and Closing Comments

My greatest challenge lay in analyzing the volumes of data and matching the data to the 24 research questions. Some of the research questions had just a little data, e.g. the parent survey responses, while other research questions had more data as evidence of findings.

My experiences as a writer come from my occupation as a scientist, where I write only short, brief statements. In writing my dissertation, I needed to expand and broaden my writing expertise so that I could make sense of my findings. In fine-tuning the final draft, I have attempted to set forth a scholarly product, well written and easily understood.

I found the writings of Malcolm Knowles the most inspirational guide for working with the learning contract. I have attempted to release the energy of the learners in my role as the
facilitator of learning. Rita Dunn’s work with the Contract Activity Package and learning styles and Carol Tomlinson’s work with differentiation of instruction also helped set in motion the implementation of the learning contract. On the middle school level, Scott Greenwood’s discussion of the seventh-grade learners and their needs in the classroom helped me to understand the adolescent learners. Greenwood (1995) writes that although many of the middle school teachers have made a successful transition from being a “sage on the stage to a guide on the side,” middle level instruction is still not “consonant” with the needs of the early adolescent (p.88).

As a result of my research, I learned how to use a new type of learning contract. I set the stage for high students’ expectations, and I opened the doors to a variety of learning experiences. I experienced the joys of teaching a dynamic group of diverse learners so that each felt important and good about the learning process and the outcomes. I enriched my social awareness of middle school students’ needs as individuals.

I would strongly recommend the adoption of a learning contract on any level of education. It empowers the students to become life-long learners, and it enables the teacher to become a facilitator for the learning process.

Post note

According to an Internet search conducted in June 2000, 68,699 sites existed for educational learning contracts. I could find no matches for educational learning contracts and middle school students at that time.

Today, I use a modified version of the learning contract with my high school chemistry students and my earth science students. Both groups have adapted exceptionally well to its use.