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**ASSESSING STUDENT PERFORMANCE THROUGH THE
APPLICATION OF FORMATIVE RUBRICS**

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ABSTRACT

This qualitative research study documents the observed and reported experiences of 22 tenth, eleventh, and twelfth grade vocational students and their teacher as they engaged in the use of formative rubrics for the purpose of evaluating the task performance and interpersonal skills of themselves and classmates.

While practicing automotive related tasks, the student pair groups completed self and peer assessments which were compared to those of the teacher, providing input for the purpose of improving performance related to identified program/teacher expectations. The four month study included participant observations, surveys, questionnaires, and documented reflective discourse about the rubrics' use.

The study showed that when students use rubrics that clearly explain the performance expectations, they demonstrate mostly on-task behavior during the completion of skills. When rubrics are based on valid objective criteria, the student self assessments, peer assessments, and teacher assessments reflect reliability. When students are asked to complete questionnaires and surveys about their behavior, assessed in accordance with the rubrics, their observations reflect honesty in comparison with the desired standards.

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RESEARCHER STANCE

As an automotive technician, I found it most rewarding to continually further my product knowledge by attending manufacturer sponsored training classes and then bring that information back to the dealership and present it to others. Over an eleven year period, I attended more than one-hundred General Motors specialized training sessions totaling over two-thousand hours. Some of the greatest enjoyment I received while working as a technician, was the process of enlightening beginning mechanics.

Expanding on the educational aspect of my first career path, I progressed into a teaching career, first at a community college and then in secondary education. Now as the “senior teacher” in my department, I find myself still personally attached to the teaching of the first year students. I believe it is the visually apparent rapid knowledge and skill growth of beginning learners that holds my desire to teach newcomers to the field. In addition, I like to think my thirty years of trade experience affords me an understanding of knowing “what is important” and my fifteen years of teaching experience helps me in its presentation. As a progressive educator though, I understand that the learning process can always be improved, and looking for better, more efficient ways to impart knowledge is a responsibility of this occupational position.

Today's career opportunities demand that prospective employees are competently trained in their field of expertise, and hold many certifications as well. Therefore, one of my main professional goals as a technical educator is to prepare students for careers in the industry by teaching them the automotive related standards and objectives. Of equal importance as well as personal interest, is the task of teaching students the "skills of employability."

Since the job market is full of educated prospective candidates, employers are often times selective by choosing people that have a good attitude. By demonstrating that you are a "can do person" with a personality that is compatible to a team environment, you could potentially stand out as the right person for the job.

I think student attitudes are like leaves in the wind. Sometimes they follow predictable paths and then other times they can change course without warning for any apparent reason. I would like to more positively guide my students' work skills as well as employability skills (attitude/behavior) in order to help them be better learners and better prospective employees.

It is sometimes difficult for students to understand what it is you want them to do without having to constantly tell them. In my most recent years of teaching, I have tried to reflect on prior practice and have come to the conclusion that I am spending a great deal of time correcting students. In response, I thought it would be worth trying a more proactive measure that described the desired

expectations, rather than emphasizing catching students doing something wrong and then correcting them. From the data gathered in my mini study, I concluded teaching became more effective by using an attitude rubric that gave students a clear description of the behavior I was “looking for” rather than “what not to do.” By giving the students the rubric up front, as a formative assessment tool rather than at the time of evaluation, I also noticed they were able to more effectively practice the desired outcomes, thus improving performance.

One other sidebar to my mini study was that I noticed students were more apt to help each other during formative skill development, since they had a better understanding of what was expected. I currently use this new found feature to my benefit, by having students occasionally mentor others as a part of their mastery evaluation. It is my belief that if I observe one student effectively teach another student a task, then they have proficiently demonstrated competency. Also too, watching and listening to the interaction between mentors and interns gave me the idea to try having the students complete a self-assessment as well as a peer-partner assessment, as a means of improving the accuracy of their respective performance during formative skill development.

I think that by providing students with performance-based procedures during the beginning of the year and practicing those procedures, a teacher can improve outcomes. I am always looking for ways to improve the progress of my students. I believe rubrics are one way that teachers can convey expectations and

allow students to practice the application of those expectations, without having to consistently remind them. It is my wish that after the first few rubrics are introduced and practiced, many students will be able to follow the guidelines with little teacher input. The objective is not to eliminate the need for the teacher to teach, but for the teacher and student to understand the respective expectations of one another and consistently move toward achieving the desired outcomes. A rubric can provide a student with a written guideline of what the teacher expects, how the student will be graded, and accompanying checkpoints along the way.

For my study, I will be implementing the use of formative work skill and employability skill rubrics, in the hope that I can help my students understand what is important from an industry aligned perspective. Students will use the rubrics to assess the performance of themselves and their partner. I will then individually discuss my observed assessment of their performance related to the rubrics, as a means of communicating a better understanding of my expectations. It is my intention that this point of view will be directed to help the students be successful in the completion of tasks essential to the workplace. By providing my students with a clear understanding of my expectations for them, I hope to reduce the amount of wasted time or time off task.

In addition, I want to gain a better understanding of what they, the students, need from me to be successful. In order for this step to be accomplished, it is important that the students are involved in the evaluation and

modification of the rubrics. By allowing student input and feedback, the rubrics will become working documents and my students will take ownership of them, affording the rubrics validity.

A qualitative research study gains additional validity when all of the information gathered and observed is contained in the findings. To this end, I will be impartial in the documentation and the inclusion of data in this study. I will remain open to capturing the experiences as they occur and presenting the information regardless of the stance. I will be open to consider varied points of view, presenting them independent of the ambitions of my work.

In conclusion, the prospective objectives of my work skills and employability skills rubrics are to promote the task performance and related attitude of my students. It is my belief that this can be accomplished by establishing criteria and a formative assessment process that is logically sequenced to improve student work ethics and preparedness for the expectations of the work place. By helping and coaching my students to become distinguished in each evaluation area of the rubrics, they will become enlightened to the skills that identify an exemplary student and employee.

This leads me to my research question: What will be the observed and reported experiences when formative rubrics are used for students to evaluate the task performance and interpersonal skills of themselves and classmates?

LITERATURE REVIEW

Introduction

Promoting students to achieve curriculum standards and master social skills are two of the desired outcomes of the educational system in our society. The objectives may be focused around various post-secondary options such as college, technical school, military, or employment.

Regardless of the goal choice, preparing students to achieve competency before graduation is becoming increasingly more difficult. State mandated testing requires students to perform at higher levels; while at the same time school budgets are being scrutinized, resulting in larger class size. Doing more with less is becoming expected.

In an effort to maximize the use of limited educational resources, teachers are developing new strategies to deliver instruction. Some of these new methodologies include ways to keep the students actively and meaningfully engaged in learning, while allowing teachers to focus on the needs of slower or challenged learners. Two of the more recent instructional practices are: using peer-teaching as an instructional resource and providing rubrics to explain and clarify expectations.

In a study by Orsmond, Merry, and Callaghan (2004), they found that using peer-assessment was a useful tool in helping students to achieve goals. While the students were in the formative stages of skill development, the peer-

groups were able to offer each other feedback related to their learning. Using the peer feedback, they were then able to rehearse objective performance and more often become proficient before final evaluation.

Andrade (2005) describes rubrics as another useful tool that can be used during the application stages of objective completion. Andrade (2005) states:

We use them to clarify our learning goals, design instruction that addresses those goals, communicate the goals to students, guide our feedback on students' progress toward the goals, and judge final products in terms of the degree to which the goals were met. (p. 27)

In an earlier work, Andrade (2000) explains that rubrics provide users, students, peers and teachers, with a list of criteria and varying levels of achievement that can be used to efficiently assess progress on objectives. The rubrics are quick to use, and remove the subjectivity from grading.

Orsmond, Merry, and Callaghan (2004) found that formative assessments permit students to discuss their progress while staying focused on the learning goals and provide a means for peer or teacher feedback while still practicing the mastery of those learning goals. Andrade's (2005) findings also define how the use of well constructed rubrics allows teachers to provide students with a highly individualized constructive critique that can be accomplished in a timely manner.

Research data has shown that rubrics are reliable tools that can be used to help teachers identify when objectives are met. In a study by Koul, Clariana, and

Salehi (2005), the ability to use rubrics to assess student work was evaluated by comparing human and computer based methods using scoring maps. The significance of the data is that it showed that both methods were equally effective when rubrics were used to identify criteria. These studies suggest that by listing the associated criteria and a hierarchy level of the expectations, students can be better prepared for mastery demonstration.

Today's career opportunities demand that prospective employees are adequately trained in their field of expertise, and hold many certifications as well. Since the job market is full of educated candidates, employers can also be selective by choosing people that have a good attitude. If an interviewee presents himself/herself as a "can do person" with a personality that is compatible to a team environment, then he/she could potentially stand out as the right person for the job.

In order to maximize a student's ability to achieve the desired outcomes of the curriculum, the teacher must clearly define the objectives and then provide a methodology that is both stimulating and efficient. In addition, by employing a cooperative learning environment that supports the displayed repetition of appropriate interpersonal skills, one can foster students to become highly desired candidates for employment.

Teacher Expectations

Two significant expectations of the teacher are for the students to become cognitively developed and tactile proficient. Teachers want their students to be highly knowledgeable and hands-on capable in their subject area in order to increase their likelihood success. This can hopefully be accomplished by actively participating in classroom instruction and completing assignments as given. In addition to the need of students to master the performance of tasks, they must develop the attributes associated with being good workers, known as employability skills.

In a study by Cagle (1998), he found a direct relationship between the expectations of the teacher and student performance. By raising the expectations, students rose to the occasion and worked harder to attain the teacher's objectives. Thus, maintaining high teacher expectations is essential in order for students to realize their potential.

Program Standards

The standards are the desired outcomes within a particular program area, as defined by the state licensing bureau. Standards are broad competency descriptions compiled from a group of several smaller tasks known as objectives. These objectives are the tasks a student is expected to be able to complete in order to be considered competent in his/her field of study.

Obviously, the more tasks a student is able to master, the more likely he/she is to be successful in a given career path. With the recent focus on attaining high expectations related to standards, Rothman (1996) developed a seven step process he calls “High Expectations Learning Process for Standards-Driven Units (HELPS).” The steps are: “1-identify standards, 2- develop ideas for a culminating event, 3- align the culminating event to the standards, 4- identify the blocks or intermediate steps, 5- create rubrics, 6- develop instructional activities, and 7- review the entire process” (p. 44-45). At the culmination of the skill set, the student presents an authentic work or performance to their teachers, peers, and possibly community members.

Employability Skills

Attributes such as honesty, integrity, kindness, and sincerity are some of the “soft” personal skills desired by employers. Kissner (1998) refers to these as “personal qualities” in her foundational skills tip sheet that is designed to help educators prepare students for the workplace. Carlson, Johnson, and Swift (2000) offer that in order to be socially competent in the workplace, students need to practice the art of workplace behavior commonly referred to as “character education,” before they graduate. In their study, they found that teachers who consistently role modeled appropriate behavior, while at the same time provided their students with a character education program were able to realize an increase

in the number of examples of positive student behavior and reduced incidences of inappropriate behavior.

Motivation

Motivating students to actively participate in the learning process is a crucial portion of teaching. Students must be actively engaged, and the learning outcomes of a class are often times dependent on the ability of the teacher to achieve that goal. In a study by Cagle (1998), he found that students were motivated as a result of a displayed interest on the behalf of their teacher. He also noted the contrary, that students, whose teacher displayed a lack of interest in their work, demonstrated a lack of motivation. “The first and most evident theme which emerged in the study was the idea that a close relationship between student and teacher resulted in increased motivation for the student” (Cagle, 1998, p.16).

In research by Komarchuk, Swenson, and Warkocki (2000), they concluded that “building strong relationships between students and the teacher helped to create a positive atmosphere in the classroom” (p. 33). Their study also suggested that the energy expended early in the school year to develop a positive student/teacher relationship would be well worth the time and effort in the rewards that would realized.

One other benefit of developing a close relationship with students is the ability to more effectively design instruction based on the current level of each individual. In an article by Alderman (1990), he suggests that at-risk students who

experience repeated inability to reach performance goals do so because of a focus on the completion of terminal objectives rather than proximal measures.

Motivating students to achieve mastery is critical; however for at-risk students the process must be slow, steady, and measurable so as not to frustrate the participants. By being more informed about their students through a reciprocal teaching/learning relationship, teachers can more effectively employ the proximal instructional method, thus both increasing student motivation and enhancing development.

Educational Value of Rubrics

A rubric is a list of criteria with various levels of quality that can be used to objectively assess a student's achievement on an objective. Rubrics are one way that teachers can convey expectations and allow students to practice application of those expectations without having to consistently remind them. They can provide a student with a written guideline of what the teacher expects, how the student will be graded, and what are the accompanying checkpoints along the way. Andrade (2000) explains that instructional rubrics identify "what counts" by defining teacher expectations and the varied levels to which those expectations have been achieved in a simple, easy to use format.

Traditional objective testing methods are good for checking content knowledge, the foundation of subject competence. However, Anderson (1998) writes that the new constructivist approach to education needs to include teaching

students how to learn and obtain knowledge. As teachers, we need to take education one step further and facilitate the action of knowledge acquisition. To this end, Saddler and Andrade (2004) add that “teachers commonly use assessment rubrics to score and grade student work, but instructional rubrics also serve another, arguably more important, role: They teach as well as evaluate” (p. 48).

Schultz (2002) takes the rubric use to a new level, by suggesting that students should be involved in the construction and evaluation of instructional rubrics and that by doing so teachers can learn more about their students. He goes on to say that rubric assessment use affords students the opportunity to take ownership of their learning by developing cognitive and risk taking skills.

Assessment

Before examining the benefits of formative assessment, we must revisit the long standing practice of summative assessment in order to define the difference. Summative assessment occurs after instruction has been completed and is a measure of what has been learned or rather what has not been learned during a particular study unit. Although this evaluation method continues to be appropriate when measuring performance related to a major culminating event, the fact remains that since it transpires post instruction, it does not offer any feedback as to how the learning is commencing. By that point the teacher has two options; revisit the study unit or move ahead, trying to incorporate missed

material within future lessons. Neither of these is very beneficial and both consume much needed time from already stressed instructional schedules.

Formative Assessment

The major advantage of formative assessment is that since it occurs during instruction, teachers can modify curriculum presentation during the learning process. Black and William (1998) inform us that by using formative assessments as learning tools, students will become more aware of their relative level in relation to the desired level of mastery. Since this type of evaluation is during application, students can use other strategies, such as peer coaching and project method, in order to achieve task completion at a proficient level. Only after they are able to demonstrate competency do the students move to the summative assessment phase, thus reducing the chance for failure. Formative rubrics become a guiding as well as motivating tool in the learning process.

Black and William (1998) go on to say “firm evidence shows that formative assessment is an essential component of classroom work and that its development can raise standards of achievement” (p. 139). Formative rubrics provide for teacher/student interaction during the learning/teaching process and that helps slow/low achievers close the gap with their classmates while overall class achievement continues forward.

Self Assessment

Starting to piece the puzzle together, after teachers provide basic instruction, identify realistic individualized goals, and motivate the student to learn, they must also incorporate student self assessment strategies so the learners can visualize where they are in relation to where they need to go. “Critical thinking about one’s experiences, attitudes and values goes hand-in-hand with personal growth and development” (Dlugos, 2003, p. 613). By providing a methodology of self realization, students can more effectively define what it is they do not understand or do not know how to do. This helps teachers be more efficient in their roles as learning managers. Black and William (1998) explain that self assessment becomes a part of formative assessment in that the participant must be able to recognize the goal, determine where they currently are in relationship to that goal, and formulate a process to narrow the gap in between.

In a study by Gregait, Johnson, and Nielsen (1997), they found that by helping students to employ self assessment strategies through the use of rubrics, checklists, cooperative learning, goal setting, and journaling, student performance was enhanced. They went on to say that teachers who convey their expectations to students through the use of formative evaluation tools, such as rubrics and checklists, enhance the learning through the interaction these tools provide.

Peer Assessment

Although using students to grade each other during summative assessment is not educationally sound, using peers to counsel each other during the formative stage can be both efficient and effective. With the implementation of the rubrics and checklists, teacher expectations are clear, and student groups can evaluate each other accordingly (Orsmond, Merry, & Callaghan, 2004). The benefit of offering this feature is that students become comfortable with being observed and critiqued, then making adjustments as needed, so that the apprehension of a teacher evaluation becomes reduced, since the expectations are the same.

Effective Teaching

Behavior and Characteristics

Effective teachers should not be identified as those who just receive good evaluations from their supervisors. It is far deeper than one can see in a forty minute formal observation.

In a study by Fraenkel (1994), he examined the practices of effective as well as ineffective teachers and compared those findings in order to better understand the characteristics of their respective behaviors. The results of his study showed that effective teachers have many commonalities including: high expectations for their students, an ability to express themselves clearly, good listening skills, remarkable patience, high energy level, depth of knowledge, and mastery of the subject area they teach. Hamza and Nash (1996) add that

exemplary teachers are ones that “provide positive, constructive responses in correcting student mistakes or in answering student questions” (p. 23).

Frankel (1994) also noted that although the subject areas they teach and their methodologies may differ, the behaviors and characteristics of these successful motivators are common, and effective teachers are role models as well as efficient educators.

Grouping and Environment

A study by Galloway and Schwartz (1994) suggests that in place of traditional placement tests to determine student groups, criterion-referenced models offering a different organization should be used in conjunction with ongoing remedial tutoring. The results of the study reflected that the grades of the participants improved and that there was no longer a need for lower-level curriculum because it promoted an ineffective learning environment. Galloway and Schwartz recognized effective teaching strategies as ones that include: altering the curriculum delivery method in order to address the student’s needs and using proximal teaching since students have such varied levels of understanding with relation to course objectives. Scott and Tobe (1995) summarize:

While the most important step is the creation of a classroom climate that encourages success, essential steps include the articulation of clear expectations of student performance, allowing assignments to be tailored

to meet specific needs and interests, modeling excellent work, providing feedback on works in progress, accepting mistakes, and celebrating successes. (p. 40)

Summary

In order for teachers to realize their goals, they should provide their students with rubrics whose criteria clearly identify the appropriate employability skills and performance skills associated with the desired program standards. Just as important, the use of those rubrics needs to occur during the formative stage of skill development, when students are able to rehearse the components of the culminating mastery.

Using self-assessment and peer-assessment strategies, instructors can capitalize on the value of formative rubrics by providing additional time for students to evaluate and reflect on the performance of themselves and their peers. Student grouping should also be considered, so that participants are placed in a positive learning environment and in proximity of their current ability level. By ensuring correct placement, students are less likely to become discouraged because of a task being too difficult or becoming bored because of a task being too elementary.

In order to maximize the motivation of their students, teachers need to show a displayed interest in their efforts. Teachers also need to model appropriate behavior and encourage the display of appropriate behavior by all students.

Using effective teaching strategies that include new ways of: curriculum presentation, knowledge delivery, and application phase remediation, affords students improved success with their culminating mastery performance. Master teachers are ones that manage the learning environment in order to capitalize each student's potential. They engage their students in activities that motivate them to develop life-long learning skills that make them better prepared to cope with whatever life presents.

METHODOLOGY

Introduction

In my plan to investigate the use of peer-evaluation during the completion of objectives, I implemented the use of formative rubrics and tracked observable changes in student performance. The rubrics were also used for students to evaluate the task performance and interpersonal skills of themselves and classmates.

Setting

The school where I teach is located in a suburban region of eastern Pennsylvania and is a secondary technical training facility serving four school districts. There are eight high schools within those districts and the population is fairly diverse as far as ethnic, cultural, religious, and financial background. The 10th – 12th grade students attend in the A.M. (A session) or in the P.M. (B session), known as “half-day about.”

The large footprint building was in excellent structural condition at the time of this study even though it was constructed in 1969. However, in order to accommodate increasing enrollment and offset the effects of rising utility costs, the building was undergoing major electrical and mechanical updating as well as floor plan revisions in order to incorporate a more efficient use of space during my research.

Participants

The students were distinguished by level, 100 meaning first year, 200 meaning second year, and 300 meaning third year, regardless of grade-level. I taught 100 level or new students in both the A session and in the B session. I selected the (A session) morning group as the study group, since my prep time that follows allowed more time for observational notes/reflections to be collected.

My morning and afternoon classes visited for two hours and forty-five minutes each day of the week and the students typically remain with me for the duration of the year. There were 22 students in each class, comprised of 20 males and 2 females. The percentage of learning support students was 45% and they had the availability of help from an instructional support person one hour per day.

The identity of the participants was protected during the study and pseudonyms have been used in the final analysis to preserve anonymity.

Procedure

I had the permission of my principals and the Human Subjects Internal Review Board (HSIRB), and signed consent forms from the parents/guardians of my students authorizing me to conduct this study (see Appendixes A, B, and C).

The instructional delivery method included group classroom instruction for the first 30 minutes of each day, and then the students moved to the shop area where they worked in teams of two. The study lasted from September 7th through December 15th. During the first few weeks, the students were permitted to work

with others of their choice, and then on September 28th I selected the teams. I made the selections based on the observed performance and behavior of the students during the trial period. The learning activities conducted prior to September 29th were elementary and generally focused on the mastery of routine safety practices.

The research study lasted for 12 weeks, Monday to Friday, and began with the formal introduction of the rubrics as part of my classroom lecture. At that time I discussed the rubrics, their use, and probed for questions just as though it was an integral part of the curriculum (see Appendixes D-G). I explained that we were testing the rubrics that became student work samples, as tools to improve their employability skills as well as performance skills. Supplementing the rubric work samples, I conducted the collection of data using many participant observations, three questionnaires, and a follow up survey at the end of the study period (see Appendixes H, I, and J). Through the use of many samples of qualitative research data, I used actual observations, surveys and questionnaires to triangulate the data and formulate action research based conclusions supported by the facts.

The work skill rubric, employability skill rubric, and complimenting daily assessment sheets were handed out and explained on September 7th. Use of the student and teacher daily assessment sheets continued for the duration of the study, ending on December 15th. The questionnaire was distributed and completed

three times during the study; September 22nd, October 20th, and November 17th.

The survey was distributed and completed on December 15th.

Since the focus of career and technical education is to ultimately prepare students for work; evaluation and grading procedures must be tied to this overall outcome. Competence in the workplace involves the ability to use knowledge, perform skills and exhibit positive attitudes. Consequently, evaluation and grading include measures from each of these three domains.

According to administrative guidelines student grades were calculated using the following criteria. Work Skills=45%, Employability Skills=25%, and Knowledge/Theory=30%. In this study I was only concerned about the grades the students received on a daily basis for their demonstrated work skills and employability skills. The work skill grades were generated using the work skills rubric as a measure of a student's ability to achieve performance standards that were defined in the learning guides. The employability grade was a rubric assessment of each student's preparedness for learning; which included a student's ability to consistently and independently demonstrate behaviors associated with character traits that are desired and required by school and industry. It was my school's policy to synonymously use attitude as a term to describe employability skills. Since a student could often confuse an assessment of their attitude as a subjective measure, the previously identified objective based employability skills rubric was used.

In addition to the routine practice of instructor guided review of procedures for proper conduct and task performance, the thrust of this study was to give the students copies of the rubrics and use them as formative tools, to evaluate the task performance and interpersonal skills of themselves and his/her partner. Each student graded himself/herself in five different areas related to these two topics and then graded their partner as well. There were also provisions on both rubric evaluation sheets for comments. Using the rubrics as tally sheets, the students denoted the various levels of criteria achievement during the completion of objectives.

As the study was underway, I looked for the students to use the rubrics as guides to improve their employability skills and work skills. It was my hope that the students would use the rubrics as tools to see how they and their peers viewed their work in comparison to the grades given by me. On each successive day, I looked for improvement in the areas where respective low scores were previously earned.

As the instructional leader, I reinforced the students' familiarity and use of the rubrics through classroom discussion and hands-on application, and I assessed the students' work skills and employability skills daily (see Appendix K) as they progressed through the application and mastery levels of the objectives. Feedback was provided through daily discourse with each student as we discussed and described the levels of achievement attained on each criterion of the rubrics.

Although levels of performance were discussed, no point values were assigned during the study period.

As the study commenced, I made sure that the grading system did not change; and I reiterated to the participants that the focus of the study was to see what effect the use of these formative rubrics would have on student grades as they completed the learning activities. I most actively engaged in the observation and collection of data to answer the question, would using the provided rubrics in conjunction with employed peer coaching and self-evaluation affect student performance?

Near the completion of the research study, the evaluation survey was used to examine student opinion related to questions concerning the impact of the new strategy. In addition, at the end of the study an open-ended questionnaire was used to further develop an understanding of the students' reflections related to their teacher assessed performance measures and the teacher assessed.

At the conclusion of the study, I used the teacher work skill and employability skill scoring sheets to provide a means of compiling numerical input for analysis (see Appendixes L and M). The relative levels of student achievement for both the employability and work skills rubrics were evaluated using the point value system as illustrated on the scoring sheets in order to formulate statistical data.

Data Sources

Work Skill Rubric- An evaluation tool that identified a list of criteria related to task performance, distinctly defined by the varying levels to which they were met, and included a point value system for cumulative assessment comparison (see Appendix D).

Employability Skill Rubric- An evaluation tool that identified a list of criteria related to the display of appropriate work attitude and character traits, distinctly defined by the varying levels to which they were met, and included a point value system for cumulative assessment comparison (see Appendix E).

Student Rubric Assessment Sheets- Daily worksheets that contained tally boxes where students entered self-assessment and peer assessment point scores associated with related criteria areas (see Appendixes F and G).

Participant Observations- A direct observation of the students while they were working in both the classroom and lab areas (see Appendix H).

Questionnaire- A seven question open-ended response that reflected the perceived level of understanding of a student's grade compared to that of their teacher's assessment (see Appendix I).

Survey- An evaluation form that contained ten statements each had a 1 through 5 point rating scale that denoted the level of student agreement or disagreement

with each statement. The survey provided feedback about the application value of the rubrics (see Appendix J).

Teacher Daily Employability/Work Skill Rubric Assessment Sheet- Daily worksheets that contained tally boxes where the teacher entered assessment point scores associated with a student's performance in related criteria areas (see Appendix K).

Teacher Work Skill Rubric Scoring Sheet- A rubric grade sheet that contained a list of desired criteria directly related to work skills, defined the varying levels that were met, and included a point value system for cumulative assessment comparison (see Appendix L).

Teacher Employability Skill Rubric Scoring Sheet- A rubric grade sheet that contained a list of desired criteria directly related to employability skills, defined the varying levels that were met, and included a point value system for cumulative assessment comparison (see Appendix M).

Trustworthiness Statement

“Consider ways in which you as a researcher influence or do not influence what happens in your classroom, so that you will interpret and portray the evidence you have gathered with honesty, respect, fairness, and accuracy” (Arhar, Holly, & Kasten, 2001, p. 171). Keeping in mind these research suggestions, I remained open to document the observations, conversations, and statistical data in a manner that did not reflect bias or partiality. Through the use

of a two sided log, as described in methodological research by Bogdan and Biklen (2002), I differentiated the actual observed behaviors from my reflective comments I realize as a teacher evaluator that sometimes outcomes do not always meet expectations or desires, but I am bound by my trustworthiness to present all of the information as a vivid reflection of the actual occurrences. I at all times remained an objective teacher action researcher, continually aware of my own biases of assuming that well behaved students were in need of less support because they demand less attention and the assumption that those students' performance assessments would be better for that same reason.

Following the ethical guidelines established by Arhar, Holly, and Kasten (2001) of ensuring the confidentiality, anonymity, and safety of the participants, as the teacher/researcher in this study I kept all of the data including the field log in a locked cabinet. The students did not have access to the data and it was destroyed after the study. Furthermore, the students were assigned pseudonyms to provide anonymity in the final copy of the study.

Before conducting the study I built a foundation based on trust, first by seeking the approval of my administration to conduct the study and second by obtaining the consent of my students' parents as recommended by Arhar, Holly, & Kasten (2001). As a means of establishing upfront communication, I followed through by sending the parental letter home explaining the study, requesting

written permission to use their child's data in the research, and releasing those "hold harmless" who declined to participate for any reason.

I included the data from only those students who had returned the permission slip granting me approval, and I did not show any impartiality to those who declined. Every student was afforded the best possible learning experience regardless of their decision to be included in the findings.

My students were informed on both September 7th and 8th, and reminded as the study commenced on September 22nd, October 20th, and November 17th that they could discuss their concerns with me, the classroom instructional assistant, the guidance counselor or the principal at any time. The students were also informed on September 7th and again on September 8th that they could withdraw from the study at any time without penalty. To do so, the student or parent was only required to inform me in writing that they did not want to be included in the study and their data will not be included in the research. No students or parents declined involvement.

During the research study time period all of the students were actively involved in the educational activities, however each student's decision to be included as a direct study participant or non-participant did not affect their grade or the availability of my instructional assistance. The activities conducted during the research study were educationally sound and most relevant to the standards and objectives of the program. As in past practice, I acted professionally,

ensuring the utmost safety for all students and concerned myself with providing an appropriate educationally sound environment while the study was commencing.

Summary

This study was conducted and completed as described, while I maintained the learning process as the major priority. During the research, the students completed the regular standards and objectives of the program while also too, they conducted the use of formative rubrics as an assessment of their progress and the progress of their peers. On a daily basis I used the teacher rubric grading sheets to assess the students' progress as they worked in teams of two completing the assigned tasks.

STORY

On the first day of the study, September 7th, the students were busy reading and reviewing several hand-outs I use to describe my expectations. The first handout we discussed was labeled “Classroom Guidelines” (see Figure 1). Using the suggestions of my administration and the Assertive Discipline Model from Canter and Canter (1976, 1982), I constructed a list of classroom and shop rules. The list of broad-based rules is followed by a list of rewards for positive behavior and a list of consequences for inappropriate behavior. By rewarding students for good behavior and issuing consequences for negative behavior, Canter professes that students will make better behavior choices.

The next document we reviewed was titled “Procedures to Rehearse”, a list of “effective teaching” suggestions by Wong and Wong (2000). The checklist identifies a series of circumstances or situations that students frequently encounter during the school year (see Figure 2). Wong and Wong suggest that by rehearsing what to do in each of these common situations prior to encountering them, the students will feel less anxious about their new environment because they are more informed and better prepared to meet teacher expectations. In my situation, by reviewing them in advance I can identify and reinforce my expectations for student performance, thus reducing the chances that my students would suffer consequences as a result of not knowing standard procedures and expectations.

CLASSROOM GUIDELINES

Lemke-Auto Tech

Room 404

RULES

1. FOLLOW DIRECTIONS FIRST TIME GIVEN
2. OBSERVE PROCEDURES (SHOP-SCHOOL-CLASSROOM)
3. COME PREPARED TO CLASS (UNIFORM-WORK SHOES-SAFETY GLASSES- SUPPLIES)
4. PERFORM QUALITY WORK AND MAINTAIN A POSITIVE ATTITUDE
5. NO SWEARING, NO PUT DOWNS

REWARDS

1. FREEDOM TO DO PERSONAL PROJECTS
2. POSITIVE CALL TO PARENTS
3. VERBAL OR WRITTEN RECOGNITION
4. ADDITIONAL CREDIT POINTS, NO HOMEWORK PASSES
5. DROP LOWEST GRADE

CONSEQUENCES

1. VERBAL WARNING, WRITTEN RECORD
2. WRITTEN ASSIGNMENT, WRITTEN RECORD
3. PARENT CONTACT
4. SIC, PARENT CONTACT
5. SIC, DETENTION, PARENT CONTACT
6. SIC, OUT OF SCHOOL SUSPENSION, PARENT CONTACT

Adapted from (Canter & Canter 1976, 1982)

Figure 1. Classroom expectations and guidelines

PROCEDURES TO REHEARSE WITH STUDENTS

- Entering the classroom
- Getting to work immediately
- When you are tardy
- End of period class dismissal
- Listening to/responding to questions
- Participating in class discussions
- When you need pencil/paper
- Keeping your desk orderly
- Checking out classroom materials
- Indicating whether you understand
- Coming to attention
- When you are absent
- Working cooperatively
- Changing groups
- Keeping your notebook
- Going to the office
- When you need help/conferencing
- Knowing the schedule for the day/class
- Keeping a progress report/work record
- Finding directions for each assignment
- Passing in papers
- Returning student work
- Getting materials without disturbing others
- Moving about the room
- When you finish early
- Returning to task after interruption
- When asking a question
- When a school-wide announcement is made
- Walking in the hall during classroom
- If the teacher is out of the classroom
- If you are suddenly ill
- Saying, "Thank you"

Adapted from (Wong & Wong, 2000)

Figure 2. Procedures to rehearse with students

The next handout for the day was called “Getting Started”, which outlined my general expectations for student performance (see Figure 3). It has always been my practice to spend sufficient time during the start-up of the school year in order to explain what I want the students to do from the time they arrive until they are dismissed, in an effort to avoid future misunderstandings. I reinforced how students who get in the habit of practicing good work ethics at school find themselves carrying those good behaviors on to the workplace.

Lastly, the students and I discussed how to work safely in the auto shop by identifying acceptable behavior related to the completion of shop objectives (see Figure 4). I conveyed the importance of these procedures, although not word for word identical to the workplace, highly applicable in context. We conversed about how knowledgeable, safe, and efficient automotive technicians make exceptional salaries, are highly sought after, and often receive open standing offers for a position at a variety of dealerships. These employers frequently provide the absolute best in working conditions and benefits realizing how critical the value of a competent and professional automotive technician is to the success of their business.

GETTING STARTED

1. Report to the classroom.
2. Sign in and check the board for specific instructions.
3. Get textbook, workbook, pen, and notebook from locker.
4. Sit in assigned seat.
5. Complete work record.
6. Begin assignment on board, work quietly.
7. Act appropriately and do not distract other students.
8. Do not hang out in shop or locker areas.
9. Put studies away and follow theory lesson or activity when instructor begins.
10. After lesson, video, or presentation, bring your work record to the instructor to grade.
11. Report to assigned shop area.
12. Report to assigned seat for dismissal at the end of the day.

Figure 3. Procedures for getting started working

WORKING IN THE AUTO SHOP

1. Students must have a complete uniform to work in the shop.
2. All students without uniforms will work in the classroom.
3. Report to your assigned shop area and the instructor will come to you on a rotating schedule.
4. If you have a specific question that is preventing you from proceeding with your activity, come to the instructor for an answer.
5. Act in a professional manner at all times and do not yell, throw objects or display inappropriate behavior.
6. Sign out all tools with the instructor.
7. Do not wander outside the shop or into other student's work areas.
8. Treat all vehicles with care, as students are responsible for any damage to vehicles as a result of negligence or abuse.
9. Always use fender and seat covers when working on vehicles. Do not place materials or your person in or on the autos.
10. Always use the correct tool and procedure for the job, as misuse may cause tool or part damage.
11. Clean your shop area and return all tools before preparing for class dismissal.
12. Treat your fellow classmates and the teacher with respect and courtesy.

Figure 4. Guidelines for working in the auto shop.

Through the use of the handouts, that clearly identified acceptable behaviors, I believe I prevented a long term waste of time as the school year progressed, since the students were both informed and conditioned on how to spend their time most effectively. The emphasis placed on these handouts helped students to understand routine practices associated with my teaching style.

On the second day of the study I introduced the employability skills and work skills rubrics, and reviewed how the students would use them to assess the performance of their peer partner. The students were then asked to get out the handouts from the day before, as we discoursed in reference to my expectations and the forthcoming observations. We talked about how they would be using the rubrics to more clearly understand the expectations and then assess themselves as well as their peer partner in order to identify success as well as deficiencies.

I explained to the students that they could choose someone they felt comfortable to work with as their partner until September 28th and then I would assign them into groups of two. The students were quiet and followed the instruction “wide eyed and alert.” We discussed at length the five criteria that comprised the work skill rubric as well as the five criteria that made up the employability skills rubric. I explained that the students would use the respective assessment sheets to provide formative or “in-process” feedback to their partner about what they observed. The students appeared excited about being able to assess someone else’s performance and interested in sitting down with me to

defend their assessment. Several students displayed their eagerness to begin working in the automotive lab by asking, “When do we go into the shop?” I reiterated the advantages of using formative tools so adjustments could be made prior to the demonstration of mastery and final evaluation. The students liked the idea of being able to correct their mistakes before being graded.

During the next several days I concentrated on providing shop safety instruction so the students could get out into the lab work areas and begin using the rubrics as soon as possible. It is school policy for every student to complete formal classroom and shop instruction and then attain a 90% on a written safety exam before being allowed to work in the shop. We continued to review and discourse about the rubrics as part of our daily routine, although it was a little more than a week before formal use of the assessment tools began, as the students were engaged in mastering shop safety.

On the first real day in the lab, I observed the following: After classroom instruction we moved out into the shop for me to demonstrate the use of a hydraulic jack and jack stands. As I demonstrated the safe use of shop equipment, I probed to establish the level of interest and understanding of my new students. I began by placing the hydraulic floor jack under the front of the Chevrolet Geo and explaining where the lift points were to raise the vehicle. The students were actively observing, as they had their rubric sheets in hand, and I captured their expressions. As I raised the front tires to a height of about three inches off the

shop floor, I paused and said *“this should be high enough.”* I then stated, *“When completed, we want all four of the vehicles tires to each be approximately two inches off the floor and in addition we want the vehicle to be level.”*

[Watching closely] ES said “Yes, I know. It’s high enough.”

“Not on the pinch-weld.”

MW “Do you put it on the sub-frame? Is that right?”

ES “Where do you want it?”

“Check that the stands are at the same height.”

MW “Yea, I got it.” [He offered a sign of assurance in understanding.]

“You can lower the vehicle. Watch that the other jack stand is at the correct location. Is that one good? Check that you clear any fuel or brake lines before lowering the vehicle onto the stands. Each student takes a look. Now the rear.”

[MW put a creeper against the car.]

CB “No, not there! Are my front stands too high?”

MW “This will take forever!” [MW sagged slightly with impatience for other students’ learning.]

“No.” [I offered, displaying assurance from experience. And then I tossed a thought provoking question at the students.] *“When we raise the back, what will happen to the front?”*

CB states “It will go down.” [And then he countered with.] “Where do you put them in the back?”

“In the rear you’ll need to have tall jack stands since the only place to support the vehicle is on the frame, and on the right that’s directly in front of the muffler.”

[MW Placed the stands as instructed.]

ES “Lower it.”

“Check the location. How’s the height?”

MW “It’s on the frame rail.”

ES “On over here.”

“Now practice!” [I reinforce affirmatively with pleasure.]

CB “Where do I put it on the front?” [As he looked at the Cavalier.]

CB “Is that right? Should I start to jack?” [CB asked as he jacked up the front of the Cavalier, which was the car nearest to the one we practiced on.]

CB “Is that high enough?”

ES “That’s good.”

CB “Where do I put them in the rear of this car?”

ES “On the axle.”

CB “Can you check it?”

“Glasses!” [As I noticed CB was not wearing his.]

MW “We didn’t start.” [Yet?]

[MW made a feeble attempt at an excuse, for not wearing his safety glasses. I shook my head side to side as I displayed disapproval.]

CB “Is it good?”

“I will sign it off!” [I stated, as I assured them they had met success on their first day in the automotive shop. Next I instructed the students to meet with their partner, after completing the work skills and employability skills formative rubric assessment sheets.]

As I met with each student to collect their assessment sheets, I discussed what I saw that was good and what needed improvement. I mentioned to MW and ES how happy I was to see their displayed interest and eager participation. I also mentioned to MW how important it is to wear safety glasses in the automotive lab at all times. We chuckled over his comment, when he claimed he had not started yet so I should overlook the safety glasses being on his head instead of on his eyes. I told him, that was one of the important things I am here to do, reinforce safe work habits so they become second nature, and that a few points off his grade was negligible if someday the instilled awareness helped to avoid an injury.

Next I asked CB how he knew, and why it was unsafe to rest objects against a vehicle. He stated that he remembered reading it in the textbook and then he described how leaning even a light soft object against a vehicle may cause damage or dents if bumped. He went on to say it is because the metal cars are constructed of today is so thin, and then he added the paint could be easily scratched as well. I told him how important it is and how pleased I was that he made mention of this poor practice. I told CB how significant comments like his,

coming from a student, are just as noteworthy if not more noteworthy than the teachers, because fellow students place value in their peer's opinions.

On September 22, I distributed a questionnaire and explained to the students that if they completed it honestly, it would help them to more accurately understand my expectations and in addition provide me with insight as to how they thought they were doing. I advised them that from the information gained through the survey, I could more accurately describe what they needed to do to improve their performance and the assessments of their peers and those based on my observations. The students were instructed to answer the questions using full sentences, explaining to what level they achieved the expectations.

The last question asked the students to describe what they needed to do in order to improve their grade. I explained that this would help them by requiring the students to conduct self-reflection on why they were not achieving the grade they wanted or expected, and help me to realize if there was a communication breakdown.

Examining the student questionnaire completed by Mark Davis, he documented that he was meeting my expectations in all response areas (see Figure 5). I concurred with him that I was impressed with his performance so far and that indeed he was doing a fine job. A review of Dave Charles's responses revealed that he felt as though he needed to work harder and pay more attention (see Figure 6).

I discussed with Dave that I was unaware of any improvement needed, as he was earning formative assessments in the “A” range and that all of my observations of his employability and work skills documented performance of an excellent rate. I explained that his current grade was a 91% and he inferred that he would like to work toward something higher. I suggested that he might want to consider completing extra clean-up assignments or offer to help others to gain additional credit. Dave did not display any discernable interest in my offers, but mentioned he would work ahead on his bookwork assignments and try to do a better job on them.

September 22, 2006

Appendix I

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Name MARK DAVIS

WHY DID YOU GIVE ME THAT GRADE?

Answer the following questions using full sentences and addressing all parts.

1. Were you prepared to learn each day?

Workbook / textbook / uniform / homework / good attitude / appropriate behavior

yes, I believe I was prepared each day. I came to class everyday with the following points

2. Did you help your partner or did you disturb his/her learning?

I helped my partner and he also helped me. I did not disturb his learning

3. Did you and your partner focus on your assigned shop project or did you wander just watching others?

my partner and I worked together, but I would stop an assigned shop project to help others if needed

4. Did you document your learning each day in your work record or did you wait and only do it when there was not an excuse?

yes, I do it at the end of everyday and give a good discription.

5. Did you follow school / classroom / shop rules to the best of your ability?

yes, I follow the rules, I would sometimes have my glasses off.

6. Did you pay attention?

yes. I pay attention when called to

7. What must you do to improve your grade?

I believe I am doing what is right to receive a good grade.

Figure 5. Student Questionnaire

September 22, 2006

Appendix I

Name: DAVE CHARLES

WHY DID YOU GIVE ME THAT GRADE?

Answer the following questions using full sentences and addressing all parts.

1. Were you prepared to learn each day?

Workbook / textbook / uniform / homework / good attitude / appropriate behavior

Yes, I took my workbooks and textbooks to class everyday. I brought my uniform and showed good attitude everyday

2. Did you help your partner or did you disturb his/her learning?

I helped my partner complete his work and got shop projects done

3. Did you and your partner focus on your assigned shop project or did you wander just watching others?

We focused on our assigned shop project completing them everyday

4. Did you document your learning each day in your work record or did you wait and only do it when there was not an excuse?

Yes I did I filled it out at the end of day.

5. Did you follow school / classroom / shop rules to the best of your ability?

Yes, I tried to work ahead

6. Did you pay attention?

Yes, I listened to what my instructor said.

7. What must you do to improve your grade?

I must work harder and pay attention more

Figure 6. Student Questionnaire

On September 26th three students were practicing using a hydraulic lift to raise a 1990 Chevy S-10 pick-up in conjunction with referencing related information in an original equipment manufacturers (O.E.M). service manual. ES's partner was absent, so as their teacher I made an exception and allowed the three of them to work together in one peer group. [So much of our day is filled with spur of the moment judgments which can make or break a good teacher.]

I observed ES, JS, and JB looking in the service manual to identify the designated lift points. Next, I observed ES as he moved the S-10 pickup onto the lift. JS guided him to center the vehicle on the lift as JB pushed. ES was driving, key on and engine off (KOEO) as the vehicle was pulled into position. He put the vehicle into park and turned the ignition key off. Then ES moved the lift arms on the left side of the vehicle into position. JS & JB put the right lift arms into position. They then used the controls, as previously instructed, raising the vehicle about two inches. They looked at the arms for position and rocked the vehicle using the rear bumper and then said "ok?"

[All or at least two of them then said "ok." I acknowledged it looked good with a nod.]

Then they raised the vehicle and engaged the safety lock mechanism.

Once the vehicle reached the fully up position, ES said "what do we do for the test?"

“You will each set up and raise the vehicle after adjusting the arms into position and after the vehicle has been rolled backwards. You may ask for help to roll the vehicle forward or rearward.”

ES “Why?”

“Because I want to see if you know how to estimate the center of gravity.”

“Ok,” they replied.

“Begin!”

The three of them then pushed the lift arms under the vehicle. Next, ES sat back in the driver’s seat as JS & JB pushed the car rearward. [As they restarted the task from the beginning.]

Later that day during our discussion about the rubric assessments, I mentioned how pleased I was to see that the three of them used good judgment in researching the O.E.M. service manual to identify the correct vehicle lift points. I told them that they earned a “distinguished assessment” in the “Service Information Usage” category on the work skills rubric for their excellent technical performance. I also brought up the point of how they raised the vehicle almost exactly two inches and checked to see if it was stable on the lift verifying the center of gravity. These were the answers to two questions on the safety test, and the ability of the students to demonstrate mastery afforded them a “distinguished” assessment in the “Safety” category on the work skills rubric as well.

On September 27th, ES and MW were preparing to complete the objective; inspect, replace, and adjust drive belts. For the vehicle, they chose the 1996 S-10 pickup which entailed the removal and replacement of a serpentine drive belt. I reviewed some of the basic procedures with them, issued the necessary tools, and then observed the following.

ES and MW first disconnected the negative battery cable. Next they looked at the picture of the serpentine belt routing, located on top of the radiator support. They then examined the two tools in the tool kit [I provided] trying to determine which one to use. They found an application guide inside the plastic tool case and I watched as they looked up the year, model, and engine size of the vehicle. [Using their fingers as guides on the chart.] ES inserted the tool into the square hole of the tensioner and began to pry. First the wrong way which made the belt tighter, then [As MW suggested.] ES went the other way and the belt became loose and came off. They showed me the belt in their hands, as I had to walk away to assist others. [On my return] I observed them hooking up the battery negative cable.

“Are you done?”

They replied “Yes!”

“Did you record the belt number?”

They replied, [In unison once again] “No!”

“Did you check the job sheet for the information that needs to be recorded?”

They said “No! Do we have to take it off to get that?”

“Yes, unless you can see it.”

They popped the belt off quickly and I showed them the numbers. [The GM belt part # and the Dayco part #.] ES and MW put the belt back on. They finished the job by hooking up the negative battery cable, attaching an exhaust hose, and then starting the vehicle. [Their faces were smiling as they completed another objective.]

“Well done!”

I asked them to complete their summative assessment rubric sheets and bring them forward for discussion. I was once again delighted to observe how the students were using the assessment sheets in order to better understand my expectations as well as the expectations of the industry. As we conversed, I showed them my completed teacher daily employability/work skill rubric assessment sheet documenting that they had achieved industry standards (see Figure 7). I also recognized their efforts in helping to put away all of the shop equipment at the end of the day. MW offered that he enjoys working on cars every chance he gets. ES explained that he already works in a shop and knows what his employer expects.

The next day September 28th, RK and AK were using a 1998 Chevrolet Geo to practice the use of a hydraulic jack and jack stands. CB had already mastered this objective, so I asked him to mentor the two through the objective. CB said “I’ll give e’m a hand.”

RK started by looking at the job sheet as AK was doing the same. Then RK laid down on the floor, and looked under the car, as CB was jacking it up. *“Use a creeper or your clothes will get dirty and I won’t sign you off on the task.”* RK went to the tool cabinet and got a yellow creeper. She laid on it as AK crouched, all while CB explained where to put the jack stands under the front of the vehicle. As RK and AK moved the stands into position, CB pointed at the sub-frame. [Identifying the proper locations for support.] RK and AK put the stands into position and then CB lowered the floor jack. Next, they all moved to the rear of the vehicle. CB put the jack under the lift point and AK began to jack up the car. CB pointed out the rear axle. AK and RK put the stands under the rear axle and then AK lowered the jack.

Next, CB told them “Be sure the car is level for the test!”

AK and RK looked at it from the side, checking the car for level and then checked the car for stability by shaking it using the bumper.

CB said “It’s not going anywhere!” [With authority.]

“Ok, practice a couple of times and let me know when you are ready to test individually.”

I observed CB's ability to mentor two students through the completion of the jack and jack stand use objective. Later, during his assessment briefing, I described his ability to demonstrate the safe use of the shop equipment and a noted attention to safety. He clearly followed the task procedure and reviewed the key points. I expressed recognition for his helping the other two students and explained to CB that sometimes the best way for me to determine mastery performance level of an objective, is to observe the student as he/she is teaching it to peers.

I discussed with RK and AK the in process assessment of their objective. I expressed satisfaction with what I saw and reminded them to work safely following the learning guide step by step until they were ready for a mastery performance. They acknowledged interest and enthusiasm in continuing to practice the task.

On October 9th, TS and JP were practicing the use of a hydraulic jack and jack stands to raise and support a vehicle. The following observation was recorded as JP demonstrated mastery of the objective (see Figure 8).

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Date 10/09/06 Time 9:20-9:40
Participants- TOM SMALL AND JEFF PARKER

OBJECTIVES
TASK PERFORMANCE
STUDENT ASSESSMENT
TECHNICAL ASSESSMENT
TASK PERFORMANCE
SAFETY PLANNING
T ASSESSMENT

1 The students were working on Objective 42
 2 #6, Demonstrate safe use of shop 43
 3 equipment. TS and JP were practicing 44
 4 the use of a hydraulic jack and four jack 45
 5 stands to raise and support a vehicle. 46
 6 JP said he was ready to be tested and 47
 7 began by raising the front of the 1998 48
 8 Chevrolet Prism and placing it on two 49
 9 jack stands. TS observed JP as he 50
 10 completed the objective. As I observed 51
 11 JP used a creeper to roll under the 52 Use of a creeper is the preferred
 12 vehicle to check the location of the 53 method to keep from lying on the floor.
 13 hydraulic jack and then used the front 54
 14 cross-member to jack up the car. JP 55
 15 stood up the creeper on end after using 56 A good safety practice as taught.
 16 it. He raised the vehicle about three 57
 17 inches, positioned the jack stands, and 58
 18 then lowered the car. It came to rest 59
 19 about two inches off the floor. JP then 60 Correct and safe.
 20 went to the rear of the vehicle, used a 61
 21 creeper to locate the jack under the lift 62 Good technique
 22 point, and then raised it so the tires 63
 23 were about three inches off the floor. 64 Good measure
 24 Next he completed the objective by 65
 25 putting two jack stands under the pre- 66
 26 designated locations of the car. JP then 67 As taught
 27 lowered the vehicle and it came to rest 68
 28 about two inches off the floor. I saw him 69
 29 check the stability of the vehicle by 70
 30 shaking it gently after walking around 71 Mastery!
 31 the car to see if it was level front to rear 72
 32 and even side to side. [I checked the 73
 33 locations of the four jack stands. They 74
 34 were under the sub-frame in the front 75
 35 and under the axle in the rear. I said 76
 36 "good" and acknowledged his work. I 77
 37 told him to fill out the job sheet and I 78
 38 said I would sign it off.]
 39
 40
 41

Figure 8. Observation Log

The rubric assessment sheet I completed documented his “distinguished” achievements in all rubric criteria areas except for a “proficient” in Lab Cleanup (see Figure 9). I suggested to JP that when he completes an objective, he should ask me for an additional clean up assignment or offer to help others in order to achieve a higher level assessment of the last criterion.

Teacher Assessment
 Name JEFF PARKER Date 10/19/06

WORK SKILLS

	Unacceptable	Needs Improvement	Proficient	Distinguished
Task Performance				X
Service Information Usage				X
Tool Usage				X
Safety				X
Lab Cleanup				X

Teacher Comments: GREAT JOB!
 OFFER TO COMPLETE ADDITIONAL
 LAB CLEAN-UP.
 MASTERY!

Teacher Assessment
 Name JEFF PARKER Date 10/19/06

EMPLOYABILITY SKILLS

	Unacceptable	Needs Improvement	Proficient	Distinguished
Learning Materials				X
Written Assignments				X
Time Management				X
Behavior				X
Character Traits				X

Teacher Comments:

Figure 9. Teacher Employability/Work Skills Rubric Assessment Sheet

On October 10th there were multiple objectives occurring. RD was showing AM and TS how to use jacks and jack stands on the 1998 Chevrolet Cavalier, while JM and JB were doing a tire rotation following manufacturer's specifications on a 1998 Chevrolet Prism. CW and DO were checking the power steering fluid level on a 1998 Chevrolet Cavalier.

After completing the objective AM asked, "Can you tell us if this is right?"

"That's not centered."

AM raised the vehicle, moved the stand and then lowered the vehicle. He asked again, "Can you check it?"

I examined their work and then said, *"If you fill out the paperwork and I'll sign it."*

Next, I turned as JM was walking by with a torque wrench.

"What is the spec.?"

He replied "100 ft. /lbs."

"Correct! But only use 50 ft/lbs so the threads do not weaken from all of the students practicing the task. The car doesn't leave the shop. Use the one skip method and hold the torque wrench horizontal to the floor."

I observed JM as he torqued the left front wheel correctly and passed the wrench to CB. CB torqued the right front wheel using the correct procedure also.

I turned again as TS was setting another vehicle on the last of four jack stands. He asked me "Is it level?"

“No TS, the back is higher than the front. It should be level, one shoe height off the floor.”

[I showed him with my shoe as I put it up close to the tire.]

[As I was still talking,] CW and DO asked for keys and so they could run their car for five minutes. They hooked up the exhaust pipe.

I showed them how to determine which switch operated the exhaust system, by placing your hand down near the pipe and feeling for suction.

They checked the fluid level and stated, “It’s full.” Then they began searching for the type of fluid in the owner’s manual as I called...

“Let’s Go! Clean Up! We’ll pick up tomorrow where you left off today!”

On October 11th, John Glen and Jeff Stevens were practicing rotating tires on a 1998 Chevrolet Prism. I recorded the following observation as they were working (see Figure 10). JG and JS used some good logic as they worked efficiently, however they forgot that one of the most important steps is to verify the procedure according to manufacturer’s specifications first, as some repair procedures vary depending upon the make, model, and year of the vehicle.

[Practice makes perfect.]

30 10

Date 10/11/06 Time 9:00-9:40
Participants- JOHN GLEN & JEFF STEVENS

	1	The objective was # 140, Rotate tires	34	
	2	following manufacturer's specifications.	35	
OBJECTIVE	3	JG and JS raised the vehicle and placed	36	
	4	it on jack stands. [As mastered	37	
	5	previously in Objective #6.] They began	38	
	6	by removing the lug nuts. JG was	39	
TAX REFERENCE	7	removing the lug nuts while JS was	40	Smart thinking
	8	holding the brake pedal. Next they	41	
	9	moved the rear tires to the front,	42	Good logic, but correct?
	10	switching sides [cross pattern]. They	43	
	11	also crossed the front tires as they	44	
	12	moved them to the rear. [I observed	45	
	13	without participating.] JG and JS shared	46	
	14	responsibility as they alternately used a	47	
T QUESTIONS	15	dial type torque wrench to torque the lug	48	Accurate tool usage
	16	nuts to specifications while the other	49	
	17	held the brake pedal. When they	50	
	18	finished, they asked me to sign their job	51	
SCALE INFORMATION	19	sheet. [I questioned them about the	52	
	20	procedure and the sketch of the rotation	53	Verify procedure before repair!
	21	pattern that was to be drawn and	54	
	22	approved prior.????] They said they	55	
	23	forgot as they looked it up in the owner's	56	
STUDENT REFLECTION	24	manual. They then realized they made	57	
	25	an error in the rotation. JG exclaimed	58	
	26	"we screwed up, the back is wrong, the	59	Admission of mistake, the first step in
	27	back got switched and it shouldn't	60	remediation
	28	have." They switched the two rear tires	61	
	29	and re-torqued them. [I said I would sign	62	Good follow thru
	30	it off.]	63	
	31		64	
	32		65	
	33		66	
			67	
			68	

Figure 10. Observation Log

On October 16, two students were pressure testing the cooling system on the 1998 Chevrolet Prism. DO and CW began by examining the adapters in the cooling system pressure test tool kit. [Good awareness] They tried installing one adapter and then a second. They didn't have any luck getting either to fit. They continued looking in the test kit. [Good practice, check for solutions/answers] Then DO said, "None of these adapters fit, where is the right one?"

I walked over and showed them how to compare the two adapters to the radiator cap they removed.

"Does a radiator cap fit loose."

DO and CW answered "No."

"What type of a fit does a radiator cap have?"

DO and CW answered "Tight."

"Why?"

DO answered "so it doesn't leak" and CW agreed.

"Then why would you expect a tester that is designed to fit the same radiator to be loose?"

They didn't answer.[they didn't answer, because there was no answer] I handed them the tester that we had decided was the right one and asked them to try pushing down on it a little as they turned it clockwise.

They responded, "We were going to try doing that, but we were afraid to force it." [Good thinking, safety first whether it is tool, vehicle, or personal.]

“If you were afraid you might damage something then you did the right thing by waiting for me. I appreciate your patience and thoughtfulness, as the tool or radiator could have been damaged had it not been the right adapter and you did try to force it.” [Positive reinforcement]

DO and CW pressurized the radiator using the pressure pump and observed the gauge reading as described on the job sheet. [Reading and following the job sheet directions. That is what I am looking for!] Next, they completed the job sheet. I explained how to vent the pressure from the system and showed them how to safely check for cooling system pressure and temperature. They both felt and then squeezed the top radiator hose before removing the pressure tester and reinstalling the cap. [A safe practice that should always be followed.]

DO and CW filled out their rubric assessment sheets as I discussed and then documented their progress. *“You two are showing cognitive awareness. What I mean to say is that you are thinking about the job and not just rushing in order to get something done, and that is a good thing.”*

On October 17th I observed RS, TP, and CB remove and replace a serpentine belt on a 1990 S-10 pickup. They started the job by first opening the hood on the vehicle. Next, the three of them examined the job sheet [A good place to start.] and then RS selected one of the two tools in the box. TP helped as they installed it onto the tensioner pulley and removed the belt with ease. I noticed that when RS selected the serpentine belt tool, none of them had looked at the

application chart to determine the right one but rather just grabbed one of the two in the box and it fit. [Luck or skill?]

“How did you know which tool to use?”

RS answered, “I’ve done this before.” They reinstalled the belt in a matter of minutes [Very fast workmanship!] and exclaimed “Were done!”

“Did you record the belt number on the job sheet?”

Their answer was “No”

“Where is it?”

They replied “It’s worn off.” [Worn off by me!]

“Ok, however I still want you to identify a belt by the printed-on number.” I then suggested that they examine one of the other vehicles in the shop to identify and record a belt number.

They asked, “Can we do the other truck, the 1996 S-10 outside?” [Many students like to work outside, but I am not sure why?]

“Do you want to do the job all over again?”

They answered “Yes!”

“Ok!” [Maybe being outside gives them a false sense of isolation from their teacher?] They started on their second serpentine belt performance objective however this vehicle was outside.

TP said, “It doesn’t matter, even though it is drizzling.”

“Go ahead, but don’t fool around because I can watch you through the window.”

I also explained that I only wanted the **three** of them to be outside, and if anyone else showed up they should tell them to go back into the shop. I watched as RS opened the hood [RS is motivated today.] and removed the belt. Then I observed TP and CB fooling around inside the vehicle.

“What are they up to?”

I went outside to talk to TP and CB.

“I observed you two fooling, so now you can get changed and complete your classroom work since you’ve failed to follow my expectations.”

RS continued and completed the job.

I documented the performance of RS, TP, and CB on the teacher rubric assessment sheets. As we conferenced, TP and CB admitted that they could not help themselves from fooling around. When I questioned them as to why? They said maybe it’s because we felt you weren’t watching?”

On October 20th the students again completed the survey titled “Why did you give me that grade?” It provided additional insight as to what the students’ perceptions were of their respective performance and helped me to identify areas of miscommunication and misperception.

I have provided a sample response from TS documenting his feelings (see figure 11). Notice how his answer on question #4 reflected an admitted need for improvement. “I forgot to fill in two days.” TS received a “0” grade for his work

skills and employability skills assessments on those two days since he did not complete his work record. In TS's answer to question #5 he admits he "could improve on the talking rule." Question #6 reflects a "for the most part" compliance with the classroom rules about paying attention to the teacher. Question #7 also documents his awareness for needed improvements in assessment criteria through goals of "stop talking" and "stay on task."

October 20, 2006

Appendix I

423

Name TOM SMALL**WHY DID YOU GIVE ME THAT GRADE?**

Answer the following questions using full sentences and addressing all parts.

1. Were you prepared to learn each day?

Workbook / textbook / uniform / homework / good attitude / appropriate behavior

I was prepared to learn most of the time.

2. Did you help your partner or did you disturb his/her learning?

I trye to help but it may have disturb others

3. Did you and your partner focus on your assigned shop project or did you wander just watching others?

I did both work in the class room.

4. Did you document your learning each day in your work record or did you wait and only do it when there was not an excuse?

I forgot to fill in two days.

5. Did you follow school / classroom / shop rules to the best of your ability?

No I could improve on the talking rule.

6. Did you pay attention?

for the most part yes

7. What must you do to improve your grade?

Stop talking and stay on task

Figure 11. Student Questionnaire

On October 25th ES and MW were performing an oil and lube service on a 1999 Pontiac Gran Prix (see Figure 12). Although we had only been in the shop for about one month, from my observation notes you can see trustworthiness had already been established with ES and MW. ES retrieved the vehicle from the teachers' parking lot and then MW prepared and raised the car on the lift, demonstrating competent mastery of skills related to a prior performance objective.

During the completion of the task, they displayed awareness for safety when jacking the vehicle, good tool selection and usage, the application of information learned in prior lessons, and overall professional-like technique.

A 482

Date 10/25/06 Time 9:20-10:00
 Participants- EVAN SMITH & MARK WALLACE

<p>○</p> <p>○</p> <p>T</p> <p>S/T</p> <p>QUESTION</p> <p>STUDENT</p> <p>ASSESSMENT</p> <p>TASK/PROB</p> <p>○</p> <p>SAFETY</p> <p>PRACTICE</p> <p>○</p> <p>ON</p> <p>THE</p> <p>PERFORMANCE</p> <p>○</p> <p>TEACHING</p> <p>ASSESSMENT</p> <p>○</p>	<p>1 The objective was #46, Perform Oil and 47</p> <p>2 lube service. The students ES and MW 48</p> <p>3 were assigned to change the oil and 49</p> <p>4 filter on a 1999 Pontiac Gran Prix. ES 50 I am learning to trust ES as a student</p> <p>5 went to the teacher parking lot to 51 and driver</p> <p>6 retrieve the vehicle. MW asked me 52</p> <p>7 where the oil and filter was. [I told him 53</p> <p>8 the supplies were in the chemicals 54</p> <p>9 cabinet. MW returned with an oil filter 55 MW is a reliable and conscientious</p> <p>10 saying it was the only one in the cabinet. 56 student</p> <p>11 He asked "Is this the right filter." [I said 57</p> <p>12 yes but we can check it by matching it 58</p> <p>13 up with the old one when it comes off.] 59</p> <p>14 ES pulled the car into the garage bay as 60</p> <p>15 MW guided him onto the lift. I could see 61</p> <p>16 that MW was checking to see that the 62 Prior objective mastery</p> <p>17 vehicle was lined up centered over the 63</p> <p>18 lift. [I told them to use the sub-frame in 64</p> <p>19 the front and the pinch weld with blocks 65</p> <p>20 of wood on the rear. I observed MW and 66</p> <p>21 ES as they moved the lift arms into 67</p> <p>22 position and placed 2x4's in the rear on 68</p> <p>23 the lift pads. I watched as they raised 69</p> <p>24 the lift a couple of inches and then 70</p> <p>25 verified the stability of the vehicle by 71</p> <p>26 rocking it. They then continued to raise 72</p> <p>27 the vehicle into the air until the lift lock 73 Safety first</p> <p>28 engaged. Next ES rolled the drain pan 74</p> <p>29 under as MW went to get a drain plug 75</p> <p>30 wrench. [I was called away by the phone 76</p> <p>31 for a minute or two.] When I returned, 77</p> <p>32 they already had the drain plug out and I 78</p> <p>33 said what did you use they showed me 79 The tool lessons paid off!</p> <p>34 a 15mm socket and ratchet. [I said good 80</p> <p>35 choice, as I didn't want the plug to be 81</p> <p>36 rounded off.] MW and ES replied, "We 82</p> <p>37 know not to round off the plug with the 83</p> <p>38 wrong size." Next MW went for the oil 84</p> <p>39 filter wrench. [Once again I was called 85</p> <p>40 away by the phone.] When I returned 86</p> <p>41 they had already screwed the new filter 87</p> <p>42 on. [I said how did you tighten it, and 88</p> <p>43 you need to remove it so I can check... I 89</p> <p>44 was cut off] as they both said "we know 90</p> <p>45 to make sure the old gasket comes off 91 Prior lesson, they must have been</p> <p>46 and to lubricate the new gasket before 92 paying attention again</p>
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Figure 12. Observation Log

15 483

Date 10/25/06 Time 9:20-10:00
 Participants- EVAN SMITH & MARK WALLACE

<p>CT9</p> <p>15 ft 15 ft 15 ft</p>	<p>1 installing the new filter." [I asked how</p> <p>2 they tightened it.] They said "by hand." [I</p> <p>3 checked it and it was tight. Next I got the</p> <p>4 inch-pound torque wrench and showed</p> <p>5 them how to torque the drain plug to</p> <p>6 27ft/lbs.] They completed the drain plug</p> <p>7 tightening and lowered the car. [I told</p> <p>8 MW to get five quarts of 10w-30 oil.] He</p> <p>9 said "It takes 5w-30 oil, it's on the cap."</p> <p>10 [I said you're right.] They poured the oil</p> <p>11 in and ran the car as they checked for</p> <p>12 leaks.</p> <p>13</p> <p>14</p> <p>15</p>	<p>16</p> <p>17 Good technique</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24 Competent technician</p> <p>25</p> <p>26 Good follow thru</p> <p>27</p>
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Figure 12. Observation Log continued

On November 17th, the third and final student questionnaire was completed. Two examples have been included (Figures 13 and 14). AK's responses denoted her feelings of compliance and satisfactory performance in reference to classroom/shop procedures and the teacher expectations. Her response to question #7 was "I need to have more right answers on MAT and AS workbook." This answer reflected acknowledgement by AK in the one area she felt the need to improve in order to enhance her earned assessment.

Likewise DC's responses showed that he felt his performance was in agreement with the teacher expectations, however he denoted that he must "work harder out in the shop" to improve his grade.

November 17, 2006

Appendix I

748

Name ANN KELLY**WHY DID YOU GIVE ME THAT GRADE?**

Answer the following questions using full sentences and addressing all parts.

1. Were you prepared to learn each day?

Workbook / textbook / uniform / homework / good attitude / appropriate behavior

I was prepared, I had my workbooks, textbooks, uniform, homework, good attitude, and appropriate behavior for every day.

2. Did you help your partner or did you disturb his/her learning? I helped

my partner Becky when she was out and in the shop.

3. Did you and your partner focus on your assigned shop project or did you wander just watching others?

me and my partner focused on our assigned shop project.

4. Did you document your learning each day in your work record or did you wait and only do it when there was not an excuse?

I documented my learning each day in my work record every day.

5. Did you follow school / classroom / shop rules to the best of your ability?

I followed school / classroom and shop rules to the best of my ability.

6. Did you pay attention? I payed attention in class.

7. What must you do to improve your grade?

I need to have more right answers on MAT and AS workbook.

Figure 13. Student Questionnaire

November 17, 2006

Appendix I

757

Name DAVE CHARLES**WHY DID YOU GIVE ME THAT GRADE?**

Answer the following questions using full sentences and addressing all parts.

1. Were you prepared to learn each day?

Workbook / textbook / uniform / homework / good attitude / appropriate behavior

Yes I had my books and uniform with me. I had good attitude and appropriate behavior during class.

2. Did you help your partner or did you disturb his/her learning?

I helped my partner with his work.

3. Did you and your partner focus on your assigned shop project or did you wander just watching others?

My partner and I focused on our assigned shop project.

4. Did you document your learning each day in your work record or did you wait and only do it when there was not an excuse?

I documented my learning each day in my work record.

5. Did you follow school / classroom / shop rules to the best of your ability?

Yes, I followed school / classroom / shop rules to the best of my ability.

6. Did you pay attention?

Yes I paid attention.

7. What must you do to improve your grade?

Work harder out in the shop.

Figure 14. Student Questionnaire

According to a change as per my mid-study methodological review, I implemented a temporary procedure of requiring the students to document a descriptive sentence/phrase defending their assessment of each criterion (see Figures 15 and 16). Note how on October 30th, Barb Koss assessed herself and her peer Ann Kelly as “proficient” rather than “distinguished” in the time management category on the Employability Skills Rubric. When I questioned her about the less than perfect assessment, she said that they spent a too much time talking about other things rather than their assignments.

When I questioned BK about her assessments on the work skills rubric, she once again admitted that they performed less than “distinguished” in a few criteria since they were not good at selecting the right tools, had a difficult time remembering to keep their safety glasses over their eyes rather than putting them up on their head, and didn’t help do any additional lab clean-up.

My assessment of their performance was very similar; however I did not and really could not tell when BK and AK were talking about topics unrelated to the shop activities (see Figure 17). I explained that I did see the safety glasses up on their heads from time to time, but when they saw me glaring, they quickly slid them down well aware of what I was inferring. I also was cognoscente and documented the fact that they did not offer or help others put away tools.

823

Peer Assessment
 Name: Ann Kacy Date: 11-30-06

EMPLOYABILITY SKILLS

Use the criteria on the rubric to evaluate yourself.

	Unacceptable	Needs Improvement	Proficient	Distinguished
Learning Materials				x
Written Assignments				x
Time Management			x	
Behavior				x
Character Traits				x

Peer Comments:

- used book
- wrote good assignments
- finished all her work
- was good in classroom
- had a good attitude.

Self-Assessment
 Name: BARB KOSS Date: 11-30-06

EMPLOYABILITY SKILLS

Use the criteria on the rubric to evaluate yourself.

	Unacceptable	Needs Improvement	Proficient	Distinguished
Learning Materials				x
Written Assignments				x
Time Management			x	
Behavior				x
Character Traits				x

Student Comments:

- used book
- wrote assignments
- finished my work
- was good in class
- had a good attitude

Figure 15. Employability Skills Rubric Assessment Sheet

Peer Assessment

Name ANN KELLY Date 10-30-06

WORK SKILLS

Use the criteria on the rubric to evaluate yourself.

	Unacceptable	Needs Improvement	Proficient	Distinguished
Task Performance				X
Service Information Usage				X
Tool Usage			X	
Safety				X
Lab Cleanup			X	

Peer Comments:

- finished my task
- used books
- didn't use any tools
- was safe in classroom
- cleaned up her area.

Self-Assessment

Name BARB KOSS Date 11-30-06

WORK SKILLS

Use the criteria on the rubric to evaluate yourself.

	Unacceptable	Needs Improvement	Proficient	Distinguished
Task Performance				X
Service Information Usage				X
Tool Usage			X	
Safety			X	
Lab Cleanup			X	

Student Comments:

- finished my work
- used my book when necessary
- didn't use any tools
- was safe in Shop
- cleaned up my area

Figure 16. Work Skills Rubric Assessment Sheet

On December 5th, Ann Kelly assessed herself along with her partner Barb Koss as proficient in all criteria on the employability skills rubric (see Figures 18 and 19). But on the work skills rubric, AK rated herself and her partner BK as only “proficient” once again in the lab clean-up criterion. She said they did not offer additional help to others when clean-up time was called. I explained that from time to time one of them or their peer might be running late on a job at the dealership, and offering help is a good work skill that should be mastered. Often times it might be putting away tools or helping to finish a repair on a vehicle while the customer is waiting. They concurred with me on the importance of this criterion.

When I asked AK about her assessment of BK on the safety category, she reiterated that it is very easy to catch someone raising their safety glasses up on to the top of their head as you are talking to them. AK said it seems to me that it is just something you just do without thinking.

Peer Assessment

Name BARB KOSS Date 12/6/06

EMPLOYABILITY SKILLS

Use the criteria on the rubric to evaluate yourself.

	Unacceptable	Needs Improvement	Proficient	Distinguished
Learning Materials				X
Written Assignments				X
Time Management				X
Behavior				X
Character Traits				X

Peer Comments:

Self-Assessment

Name ANJA KELLY Date 12/6/06

EMPLOYABILITY SKILLS

Use the criteria on the rubric to evaluate yourself.

	Unacceptable	Needs Improvement	Proficient	Distinguished
Learning Materials				X
Written Assignments				X
Time Management				X
Behavior				X
Character Traits				X

Student Comments:

Figure 18. Employability Skills Rubric Assessment Sheet

Peer Assessment

Name BARB KASS Date 11/16/00

WORK SKILLS

Use the criteria on the rubric to evaluate yourself.

	Needs Improvement	Unacceptable	Proficient	Distinguished
Task Performance				X
Service Information Usage				X
Tool Usage				X
Safety				X
Lab Cleanup				X

Peer Comments:

Self-Assessment

Name ANN KELLY Date 11/16/00

WORK SKILLS

Use the criteria on the rubric to evaluate yourself.

	Needs Improvement	Unacceptable	Proficient	Distinguished
Task Performance				X
Service Information Usage				X
Tool Usage				X
Safety				X
Lab Cleanup				X

Student Comments:

Figure 19. Work Skills Rubric Assessment Sheet

On December 15th the participants completed a “Rubric Evaluation Survey” that asked them to rate their level of agreement with a series of statements relating to the introduction of the rubrics and the implementation of those rubrics used in the study. A completed sample survey from Tim Peters and Mark Davis documents their feelings about the work skills and employability skills rubrics during the study period (see Figures 20 and 21).

Interestingly, the ratings by TP and MD were somewhat in agreement in all areas except for question #2 where MD documented that the rubrics were not explained clearly. When I asked him about that response, he said he missed some of the preliminary material since he was not in school one day during the introduction to the study.

Another point that was of interest is that both TP and MD scored questions #7 and #10 moderately lower. Their explanation for these ratings was that they still needed to be reminded when they were off-task because “it’s so easy to do” and they did not like being evaluated by the rubrics because it caught them doing “stuff wrong” and they “could not talk their way out of it.”

December 15, 2006

Appendix J 917

Name TIM. PETERS

RUBRIC EVALUATION SURVEY

	<u>Circle your rating</u>
1. The rubrics were received prior to the assignment.	5 4 3 2 1
2. The rubrics were explained to me clearly.	5 4 3 2 1
3. The rubrics were easy to understand.	5 4 3 2 1
4. The rubrics helped me to be better prepared.	5 4 3 2 1
5. The rubrics helped me to understand teacher expectations.	5 4 3 2 1
6. I understand how the rubrics are used to assess my performance.	5 4 3 2 1
7. The rubrics helped me to know when I was off task.	5 4 3 2 1
8. The rubrics are a more accurate measurement of my performance.	5 4 3 2 1
9. The rubrics helped me to improve my partners work skills and employability skills.	5 4 3 2 1
10. I want to be evaluated using the rubrics.	5 4 3 2 1

Rating Scale:

5 = strongly agree 4 = mostly agree 3 = agree 2 = mostly disagree 1 = strongly disagree

Comments:

Figure 20. Rubric Evaluation Survey

December 15, 2006

Appendix J

918

Name: MARK DAVIS

RUBRIC EVALUATION SURVEY

Circle your rating

- 1. The rubrics were received prior to the assignment. 5 (4) 3 2 1
- 2. The rubrics were explained to me clearly. 5 4 (3) 2 1
- 3. The rubrics were easy to understand. 5 (4) 3 2 1
- 4. The rubrics helped me to be better prepared. (5) 4 3 2 1
- 5. The rubrics helped me to understand teacher expectations. (5) 4 3 2 1
- 6. I understand how the rubrics are used to assess my performance. (5) 4 3 2 1
- 7. The rubrics helped me to know when I was off task. 5 (4) 3 2 1
- 8. The rubrics are a more accurate measurement of my performance. (5) 4 3 2 1
- 9. The rubrics helped me to improve my partners work skills and employability skills. (5) 4 3 2 1
- 10. I want to be evaluated using the rubrics. 5 4 (3) 2 1

Rating Scale:

5 = strongly agree 4 = mostly agree 3 = agree 2 = mostly disagree 1 = strongly disagree

Comments:

Figure 21. Rubric Evaluation Survey

DATA ANALYSIS

“Data analysis is a complex process that involves moving back and forth between concrete bits of data and abstract concepts, between inductive and deductive reasoning, between description and interpretation.” (Merriam, 1998, p. 178.). As the research process was underway, I documented and collected data for analysis. Now that the study had concluded, I used many data analysis techniques to organize my collection into useful, interpretable information.

Field Log Analysis

I analyzed my field log by examining the participant observations and entering my reflective comments on the right hand side as per the suggestions of Bogden and Biklen (2002). I was careful to document the observations verbatim and differentiate them from my feeling about what was happening. As the observational field log documented the information, I grouped the data into categories of like context for later interpretation and reflection.

Student Work Analysis

As the study was underway, I reviewed the student work samples including completed employability skills and work skills rubrics of the students and their peers. On a daily basis and following a rotating schedule, I discussed with selected students their ability to use the rubrics as tools to better understand and meet my expectations as well as those of industry. The average weekly scores

for the teacher assessments, student assessment and peer assessments in both the employability and work skill categories were then plotted (see Figures 22 and 23).

Interview Analysis

I also reviewed with them their formative self-assessments, peer-assessments, and my assessment of their progress. We discussed the areas where the respective student were achieving or not achieving my expectations as defined by the rubrics. I also recognized students whose efforts, in some cases, were beyond the scoring rubric. In cases like these, I issued additional extra-credit points so as not to discourage motivation.

Questionnaire Analysis

The three student questionnaires, (Appendix I) were examined and the data were differentiated as either “met the expectation” (Y), or “needs improvement” (N/I). Then the data from each of the questionnaires were charted by using a value of (1) for “Y” and (0) for “N/I” (see Figures 24, 25, and 26). Also the mean score for each question on the three questionnaires was calculated so trend analysis could be conducted (see Appendix S). Throughout the course of the study the students were coached on how to improve their readiness for learning and how to meet educational expectations.

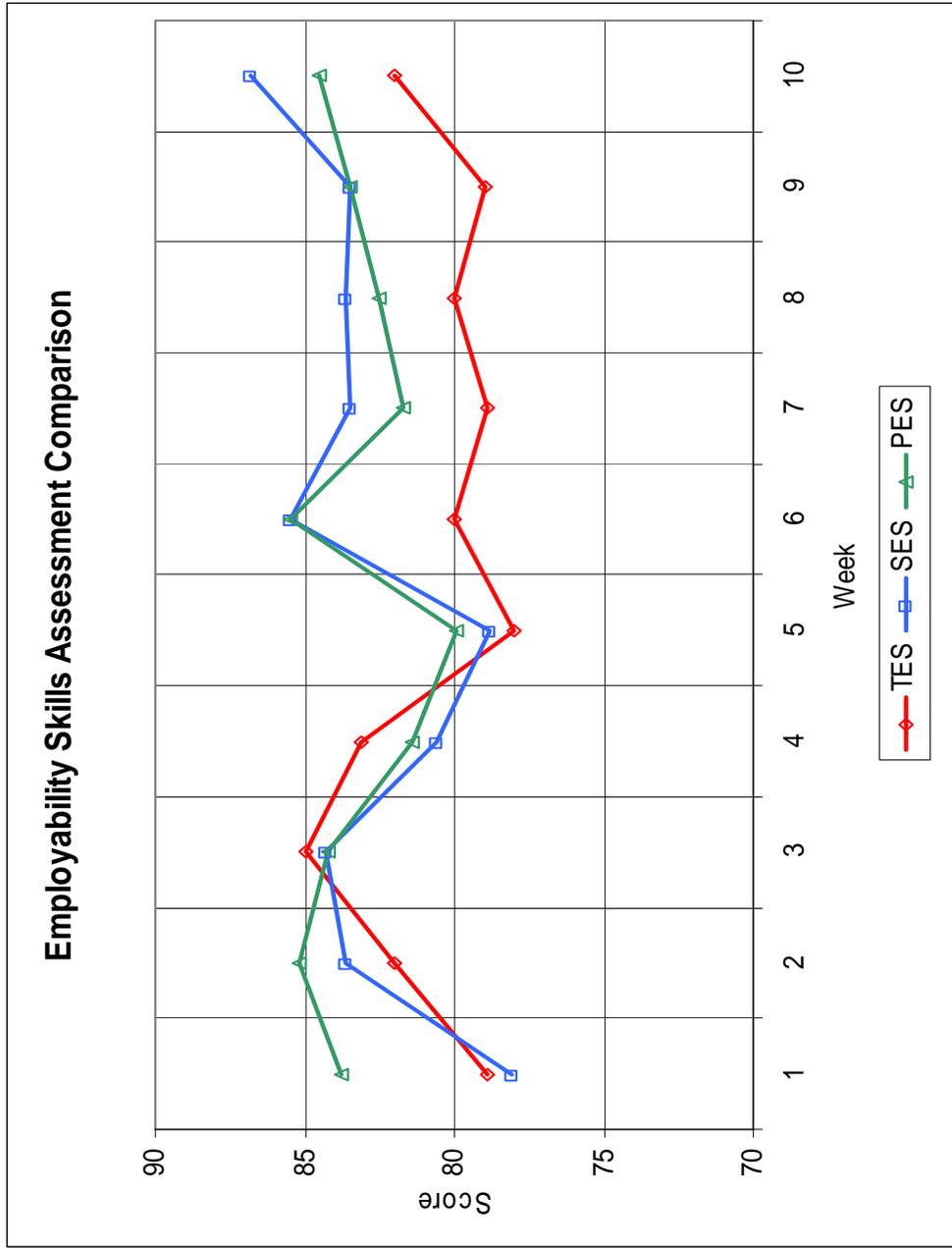


Figure 22. Weekly Mean Participant Scores

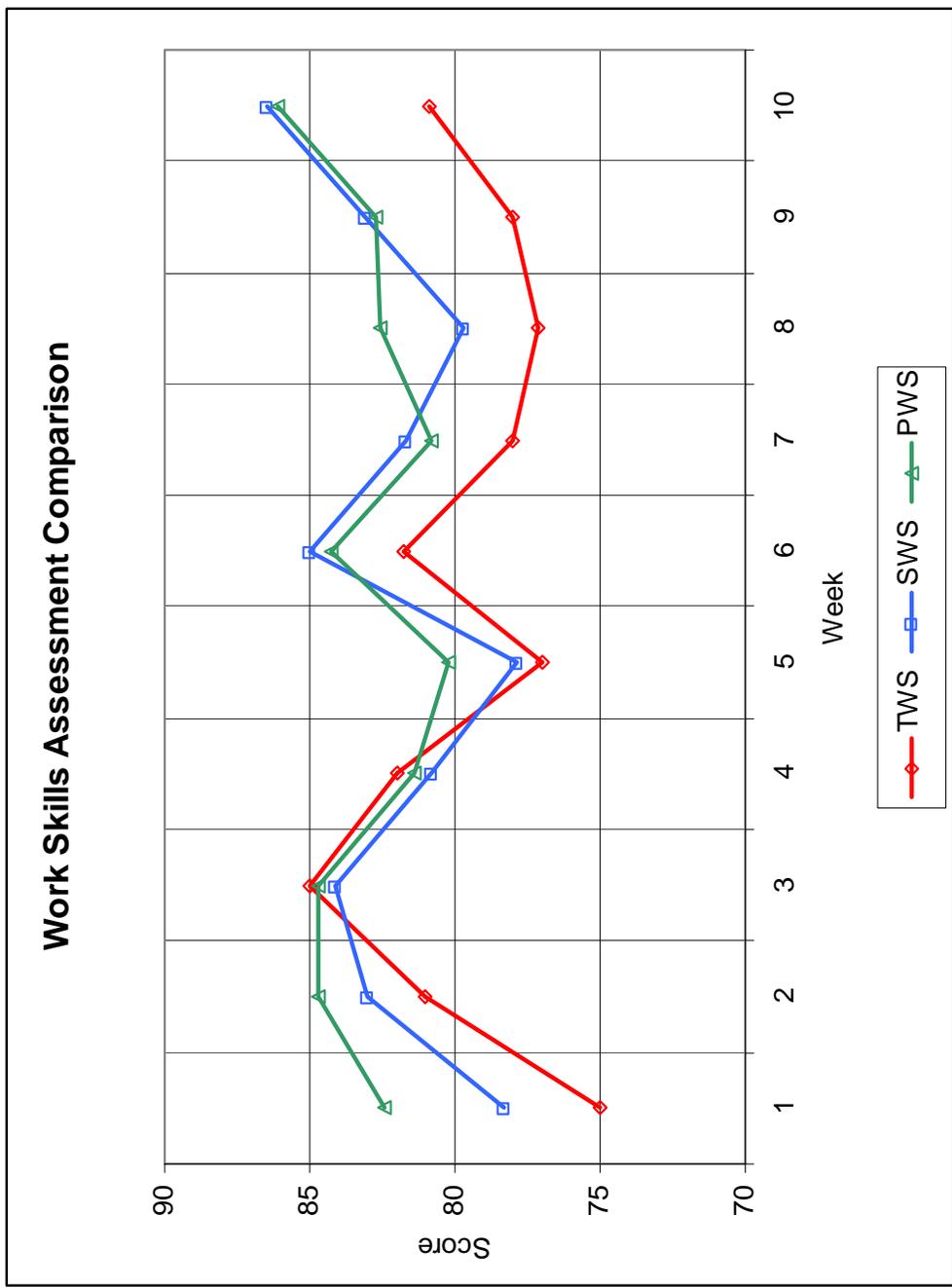


Figure 23. Weekly Mean Participant Scores

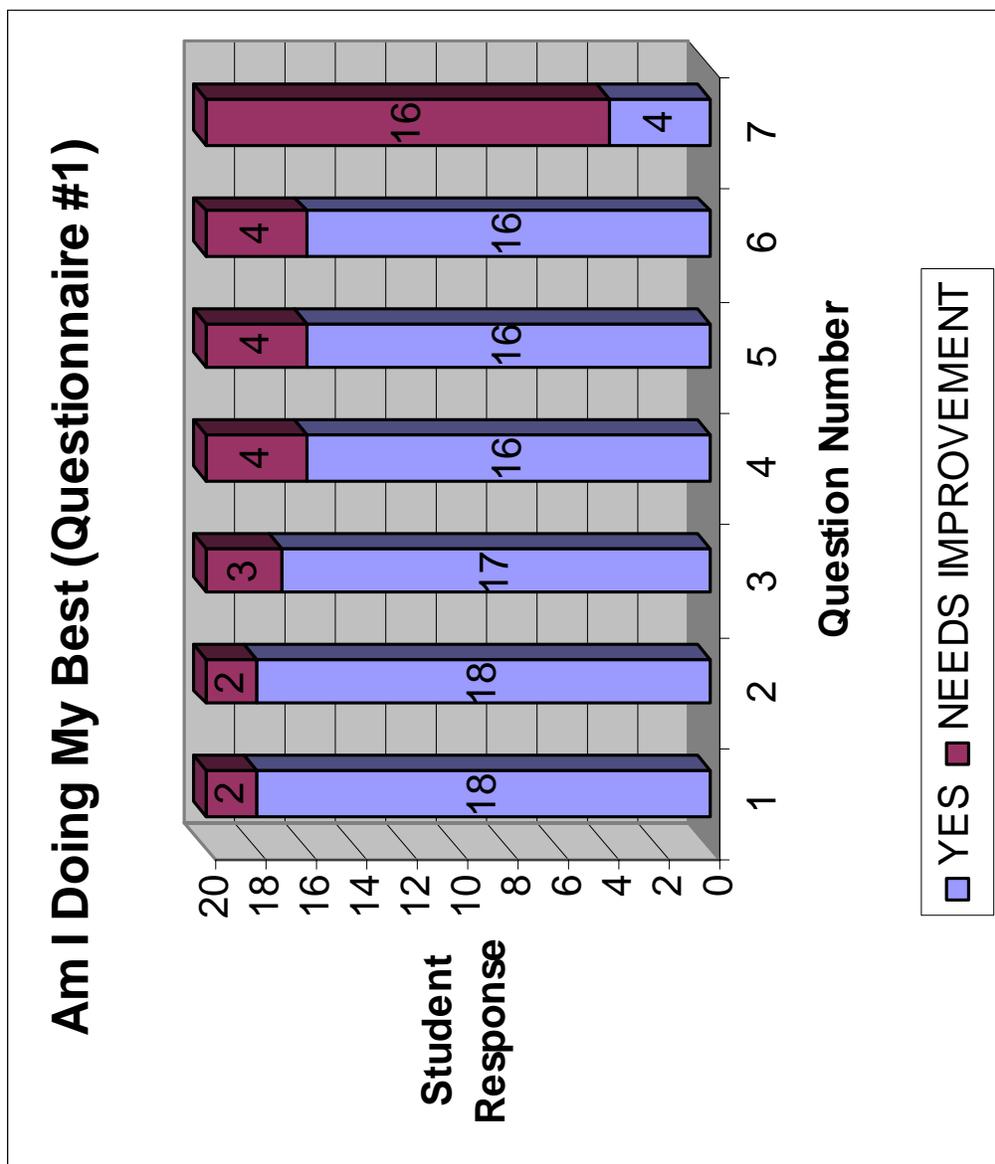


Figure 24. Participant Responses

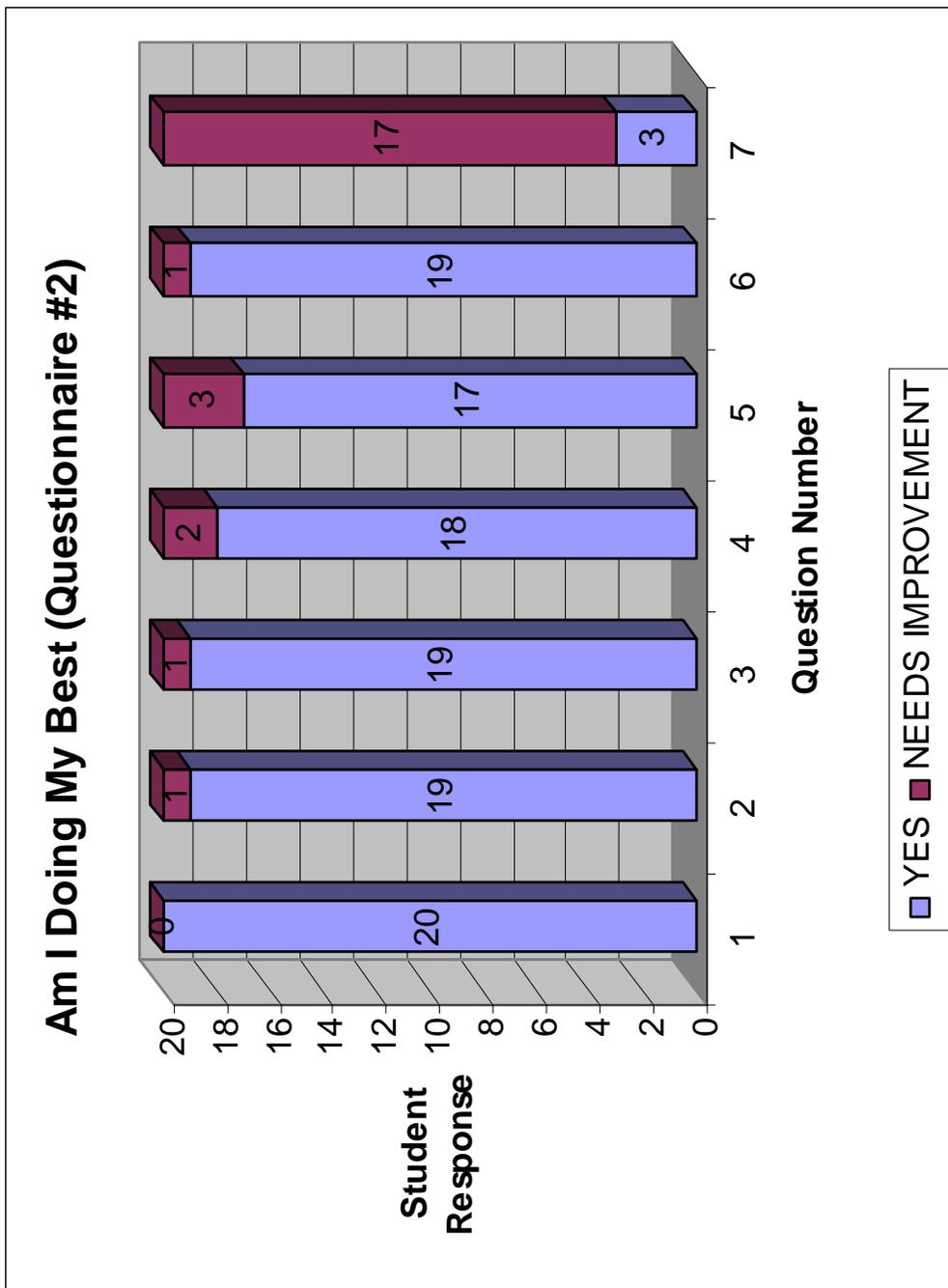


Figure 25. Participant Responses

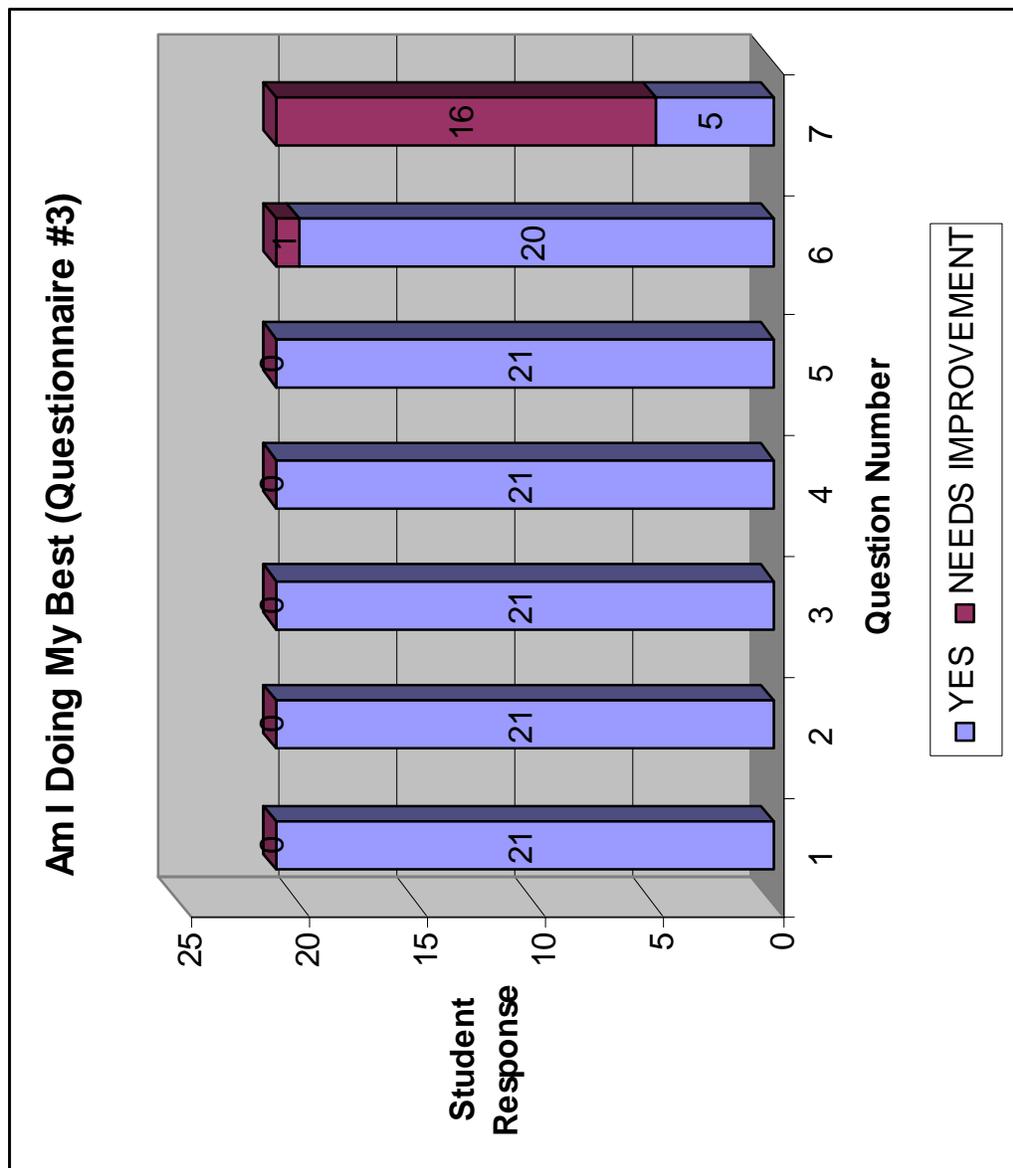


Figure 26. Participant Responses

Survey Analysis

The rubric evaluation survey, (Appendix J) was analyzed from three perspectives. The average rating score for each question and the average cumulative response score for each student sheet was calculated (see Figures 27 and 28). In addition, the standard deviation was computed for each question (see Appendix T). This information was used to assess questions about my presentation of the rubrics, the ability of the students to use the rubrics to understand and meet expectations, and the students' perceived affective value of the rubrics.

Memo Analysis

I conducted a mid-study data assessment and composed a methodological memo that adjusted my research study collection procedures, so that valuable data I identified as previously obscured or missed could now be collected. Minor changes to the students' documentation procedures and my collection methods allowed me to include additional qualitative data.

Codes, Bins, and Themes Analysis

After the notes from the observational field log were categorized, I arranged the information by coding it into reoccurring patterns of data (see Figure 29). This data was then arranged into a larger grouping of bins that allowed me to make justifiable assumptions based on an accumulation of repetitive data. The bins of founded study-based data provided the basis for theme statements.

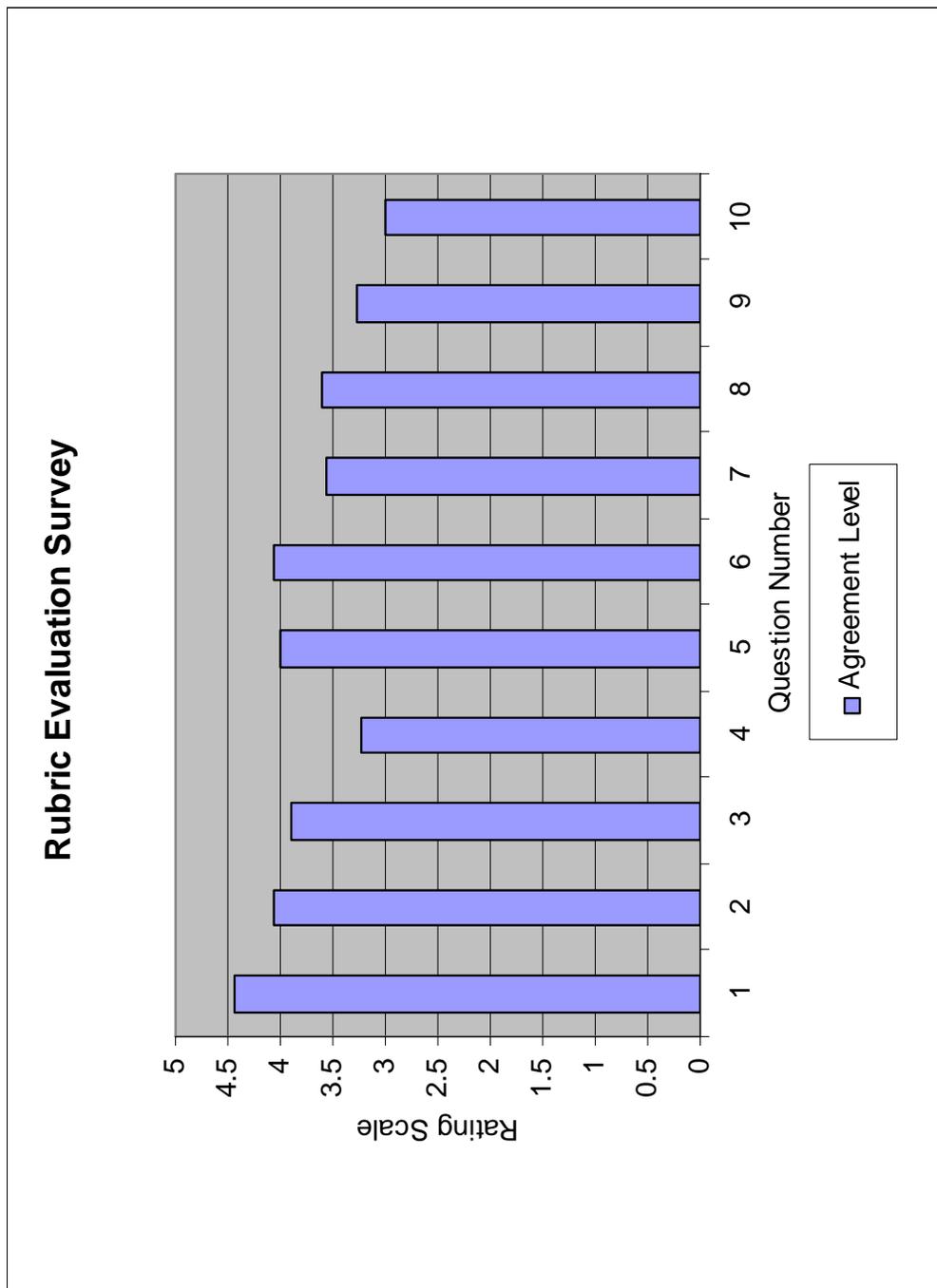


Figure 27. Mean Participant Rating by Question

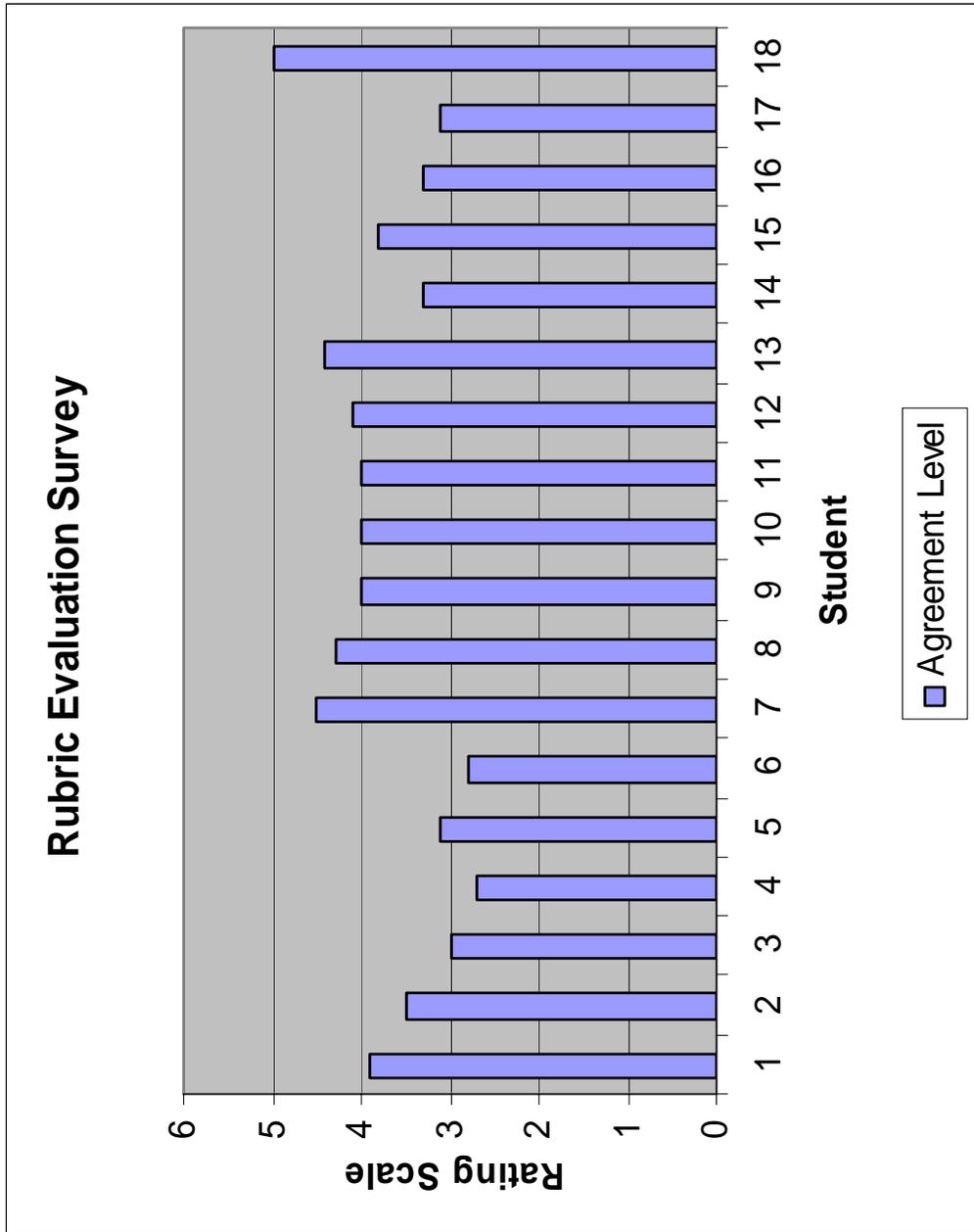


Figure 28. Mean Rating of Survey by Participant Number

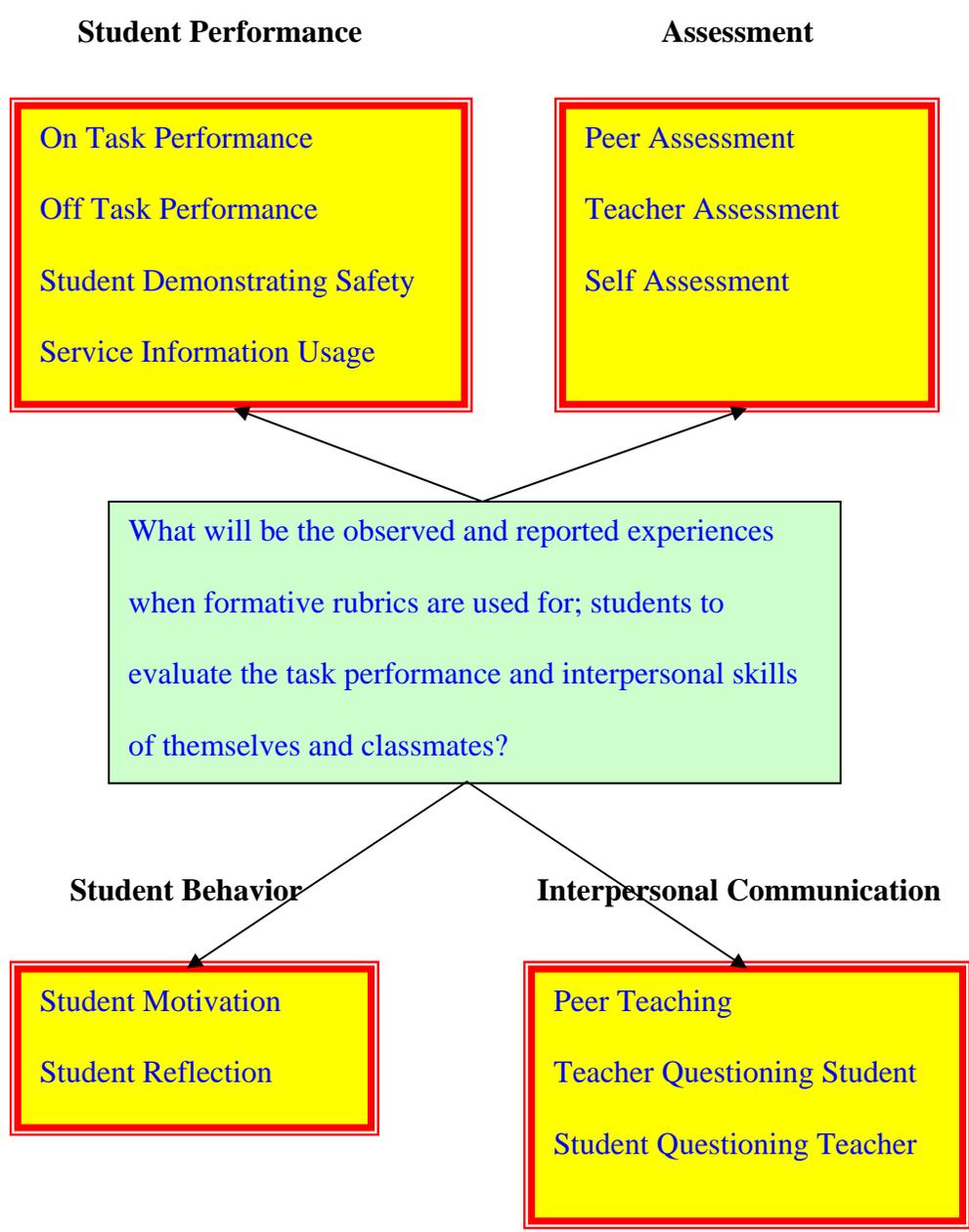


Figure 29. Codes, Bins, and Graphic Organizer.

The use of a graphic organizer allowed me to recognize several overarching themes in my study. I characterized the themes into the following statements:

- 1. When students use rubrics that clearly explain the performance expectations, they demonstrate mostly on-task behavior during the completion of skills.*
- 2. When rubrics are based on valid objective criteria, the student self assessments, peer assessments, and teacher assessments reflect reliability.*
- 3. When I asked the students to complete questionnaires and surveys about their employability skills and work skills performance in relation to the desired standards, the answers were consistent with my observations.*
- 4. When students are engaged in “accountable talk” and use reciprocal peer teaching strategies to learn and master the technical course objectives, they also foster the development of interpersonal skills.*

FINDINGS

Introduction

When I began this study, I was seeking to improve the ability of my students to more effectively understand my expectations and demonstrate those expectations relating to employability skills and work skills. Realizing that the student/teacher ratio today does not afford for any lost instructional time, I sought to more efficiently use the time associated with student formative skill development since this is the largest consumer of class time.

Therefore, as a trial, I instituted measures to incorporate the use of well-defined rubrics to more clearly identify desired behaviors and implement the use of peer coaching/teaching as methods to reinforce expectations. During the study, I observed and then analyzed if the rubrics were being used and what impact they were having on student performance.

Student Performance Meets Expectations

The first theme that emerged from the study was that when a teacher clearly identifies what it is he/she wants the students to do (expectation) and is able to proficiently demonstrate that task (application), then the students increasingly demonstrate on-task behavior during the completion of those skills.

The expectation in this case is “the performance objective” defined as “what you want the student to do.” A study by Andrade (2000) suggests identifying “what counts” in rubrics, therefore allowing for easy reference to

increasing levels of desired behaviors, known as the criteria. Gregait, Johnson, and Nielsen (1997), suggest that teachers who use tools such as rubrics and checklists enhance students' learning through the student/teacher interaction they provide.

Throughout the study I was able to observe and document the use of the rubrics by the students, and how that led to improved performance on their assessments. Examination of the data (found in Appendix R) and plotted on graphs (Figures 22 and 23) show a definitive increase in both the Employability Skills and the Work Skills Assessments from week #1 to week #10.

*Note: I am attributing the mid-study dip (around weeks 4 and 5) and the rebound oscillations (weeks 6 and 7) in all assessments, to the implementation of added curriculum requirements. The students began working on a supporting computerized curriculum about one hour per week. The "Time Management" criterion on the teacher employability skills rubric assessment sheets and the "Service Information Usage" criterion on the teacher work skills rubric assessment sheets documented the students' difficulty in dealing with the additional work load. This additional work requirement impacted their time allotment to complete their regular objectives. Notice however, after a few weeks all of the assessment scores surpassed their previous level even as the use of the on-line curriculum continued.

I was also able to watch and reflect on how students who actively saw their teacher demonstrate skill-sets became increasingly motivated (see the first real day in the lab, page 38 and the following teacher/student debriefing, page 40). As Cagle (1998) found, by raising the teacher expectations student performance also rose. Cagle also suggested that students become more motivated as a result of a teacher's displayed interest in the objectives and in the students. My field log documented many students were interacting with the teacher as they eagerly complete objectives (for example see October 10th, page 56).

So teachers who explain what it is they want the students to do, identify the expectations through objective assessment tools such as rubrics, and frequently and fluently demonstrate a desire for their students to master those tasks, attain the highest levels of student achievement.

Rubrics Provide for Reliability

Rubrics that are based on clear objective criteria provide for fair and duplicative assessments. The rubrics used in this study provided distinctive levels of criterion achievement, allowing for more accurate assessments. When the scores for the student self-assessments, peer-assessments, and teacher assessments were compared, direct correlation was evident.

A comparison of the combined class mean scores associated with the teacher employability skills (TES), student employability skills (SES), and peer employability skills (PES) scores plotted on the employability skills graph; and

the teacher work skills (TWS), student work skills (SWS), and peer work skills (PWS) scores plotted on the work skills graph reflects the reliability of the assessments (see Figures 22 and 23). The correlation coefficients for the data can be found in Table 1. Examining the calculations, regardless of the origination of the assessment (teacher, student, or peer), when the assessments were compared to one another, they all displayed a positive relationship. The last four (SES:PES, TWS:SWS, TWS:PWS, and SWS:PWS) evidenced a significant positive relationship.

Further examination of the rubric assessment sheets revealed that the TES:SES and TES:PES assessments differed most often in the criterion “Character Traits.” I associated this to the lack of displayed interpersonal skills by students as is the trend with current society. This was evidenced in my field log by the frequent use of inappropriate language, name calling, and a general lack of courteous interaction between participants. My discussion with students about these topics during the assessment briefings unveiled a general apathy for what I consider to be appropriate discourse between individuals.

Table 1

	<i>CORRELATION COEFFICIENTS</i>					
	TES	SES	PES	TWS	SWS	PWS
WEEK 1	78.9	78.1	83.8	75.0	78.3	82.4
WEEK 2	82.0	83.7	85.2	81.0	83.0	84.7
WEEK 3	85.0	84.3	84.2	85.0	84.1	84.7
WEEK 4	83.1	80.6	81.4	81.9	80.8	81.4
WEEK 5	78.0	78.8	79.9	77.0	77.9	80.2
WEEK 6	80.0	85.5	85.5	81.8	85.0	84.3
WEEK 7	78.9	83.5	81.7	78.0	81.7	80.8
WEEK 8	80.0	83.6	82.5	77.1	79.7	82.5
WEEK 9	79.0	83.5	83.5	78.0	83.1	82.7
WEEK 10	82.0	86.8	84.5	80.9	86.5	86.1
	TES:SES	TES:PES	SES:PES	TWS:SWS	TWS:PWS	SWS:PWS
	0.39	0.36	0.60	0.70	0.58	0.82

All three, the teacher, the student, and the peer consistently assessed the participant performances similarly for both work skills and employability skills. *Reliability of the standard of measure was affirmed in that regardless of the generator of the rubric assessments, the scores were very comparable.*

Andrade's (2005) findings defined how the use of well-constructed rubrics, allowed teachers to provide students with a highly individualized and constructive critique. And an earlier work of Andrade (2000), explained that rubrics provide users, students, peers, and teachers with a list of criteria and varying levels of achievement that can be used to efficiently assess progress on

objectives while removing the subjectivity from grading. The significant information exemplified in these studies, which was supported by my study was that; rubric based assessments are authentic when they provide for the use of objective measures to determine distinctly identifiable levels of attainment on valid criteria.

Student Questionnaires

When I plotted the data from the three questionnaires, the student responses from questions one through six showed that there was enhanced performance in the students' self-reflected compliance to the expectations over the course of the study period (see Figures 24, 25, and 26). This is evidenced by a maximum number of "yes" responses to questions one through five and an increase in the "yes" responses to question six. These are significant and important gains, as the students' answers supported the observed improvements in their performance associated with the related program/teacher expectations (see data contained in Appendix S). The calculated increase in the mean score for each question documented these findings.

With reference to question number seven, although the increase in the number of students who could identify what to do to improve their grade was insignificant, the students who did were better able to document the necessary means (see Figures 11, 13, and 14). Importantly, this afforded me an opportunity to help those students who were willing to admit to a **recognizable need**. I can

say, after 15 years of teaching experience, that just by the fact that a student is able to recognize and admit that improvements are needed, it makes it that much easier to achieve progress.

Scott and Tobe (1995) summarized that the teacher needs to provide clear expectations, design instruction to meet outcomes, and provide students with feedback that is designed to both motivate students to correct mistakes and celebrate success. *Keeping this in mind, when I conversed with each student discussing their respective answers, I was sure to offer credit and recognition where due, and assurance that progress could be achieved where needed.*

Student Surveys

When students were questioned about the implementation of the rubrics and their use, they gave answers that reflected my documentations about the study. I was very careful to follow the methodological study timetable and meet the outlined agenda. I taught classroom lessons and reinforced the use of the rubrics through shop demonstration. We discoursed about the rubrics, their use, and the benefits of having objective assessment tools.

The student responses to the individual questions on the survey showed that they concurred with my outline. The rubrics made a lasting impression in the minds of the students as far as how they can and were used to efficiently and effectively assess student work skills and employability skills. This was evident in

the frequency ratings and mean scores on each respective question and by each respective participant (see Figures 27 and 28).

When tallied, the individual student responses to the questions showed considerable stability. This lack of variability, characterized by a low standard deviation score (STDEV), reflects that the individual student perceptions of the rubric evaluation survey were similar (see Appendix T). By analyzing the data three ways, question by question mean, question by question standard deviation, and student by student mean a more reliable interpretation of the results was achieved to support the conclusions.

Peer Teaching and Assessment

Through the use of peer teaching, peer evaluation, and accountable talk the students fostered the development of their interpersonal skills. As in the study by Orsmond, Merry, and Callaghan (2004), I found that peer-assessment was a useful tool in helping students to achieve goals. While the students were in the formative stages of skill development, the peer-groups were able to offer each other feedback “accountable talk” related to their learning. This peer-feedback was more easily received since it came from friends and not just the teacher (see Figure 19 and the following briefing with AK & BK page 75). My observations documented that students accepted even failure with a laugh when they were surrounded by “buddies” (see Figure 10). They were also more willing to jump back in and try again (see page 49 as ES & MS have to redo an objective)!

Formative Assessments Generate Mastery

When the students were practicing the objectives with the related task sheets and assessment criteria in hand, they were relaxed and responded well to coaching from peers. This formative skill development stage was most critical to the preparation for mastery (see pages 51 and 52 as CB mentors RK & AK). Students who took “practice” seriously, were more frequently at ease and often performed to the level of distinguished at the time of mastery demonstration. My observations were in complete agreement with the findings of Black and William (1998), who found that by using formative assessments as learning tools students become more aware of their relative level in relation to the desired level of mastery. Black and William went on to say that since this type of evaluation is during the application phase, students can use peer coaching as a strategy in order to achieve task completion at a distinguished level. Then, only after they are able to demonstrate competency do the students move to the summative evaluation phase, thus reducing the chance for failure. Orsmond, Merry, and Callaghan (2004) add the use of formative rubrics becomes a guiding as well as motivating tool in the learning process. Since the students become comfortable with being observed and critiqued, they are able to make adjustments as needed, and the apprehension of a teacher evaluation becomes reduced since the expectations are identical. *As my study continued, the participants became familiar with and*

accustomed to routine teacher observations as well as formative assessments and also too, performing self-assessments and/or peer-assessments.

Metatheme

If there was one major underlying theme that became apparent throughout the whole study, it was that the use of formative rubrics and peer evaluations provided a heightened awareness for teacher and program expectations. By providing specific instruction surrounding the procedures for success and reinforcing those expectations with active assessment tools, the students became cognoscente of their on-task and off-task performance.

Summary

Yes, the formative rubrics combined with peer assessment strategies helped my students to improve their work skills and employability skills, but also too they challenged and honed my teaching skills. **Students that are held to high expectations have high expectations.** Teachers who are going to teach using rubrics, questionnaires, surveys, and peer-assessment strategies need to be prepared for fallout if they themselves are not competent and confident in their teaching ability and preparedness. I refreshed my understanding that, you **must** be able to demonstrate with **undeniable perfection** that which you expect your students to do and if you cannot, you are setting yourself up for disaster.

Evaluation surveys completed by students can be very matter of fact and only those teachers who are organized managers of curriculum and effective instructional leaders had better empower students with assessment tools.

NEXT STEPS

The strategies that I believe helped to make my action research a success such as spending time on the introduction and reinforcement of classroom operating procedures, employability skills, and work skills will be carried on to successive classes. The use of peer-assessment and self-assessment will also be continued as these proved to be valuable tools in the development of student tactile performance and the refinement of interpersonal skills.

I would like to carry the use of the two rubrics, employability skills and work skills, to a new level by developing checklists for the listed criterion which will describe/identify the many important characteristics of each. For example, the “learning materials” criterion would have a descriptive list that students will be expected to bring to class every day such as one red pen, one blue or black pen, two 1” three-ring binders, 100 sheets of lined notebook paper, two automotive textbooks, two automotive workbooks, etc.

These checklists would be written as a means to more clearly identify expectations and enhance student readiness for learning. The students could use them as tally sheets when preparing for instruction or shop activities.

With the introduction of the rubrics next school year, I would like to begin by concentrating on the introduction of one new criterion each day along with the reinforcement of those previous. I believe this more gradual method would allow students to adjust to the self- assessment, peer-assessment, and teacher assessment

strategy with less anxiety. More importantly, added emphasis needs to occur on the criterion “Character Traits,” as this area continued to be a shortcoming for a majority of my students during the study and most employers hold this to be a very critical employee asset.

In addition, I would like to continue the practice of requiring the students to include a descriptive sentence which defends or describes their assessments, as was done at the time of the mid-study review. I believe this measure enhances a student’s reflections about their assessments.

Something else I would also like to try is constructing a random weekly schedule for assessing student groups. Each day I would observe four students, two groups containing a pair of participants in each. During the study, I found myself observing those students who were most actively engaged in learning more frequently. By making this change it would offer a more proportional distribution of my time and possibly motivate students who were slacking off, by having me focused on observing and assessing them.

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APPENDIX A

April 07, 2006

Dear _____ and _____

During the 2006-2007 school year, I will be completing courses in partial fulfillment of a Master's degree in Curriculum and Instruction at Moravian College. These courses will help me stay in touch with the most effective methods of teaching in order to provide the best learning experience for our students.

Moravian's program requires that I conduct a systematic study of my own teaching practices through action research. The focus of my research this semester (September 7- December 15) is - The Impact of Formative Rubrics on Student Performance.

A rubric is an evaluation tool that identifies specific criteria and the level to which each was achieved during a student assessment. I hope that by working with formative rubrics prior to assessment, students will have a better understanding of my expectations. I believe the use of rubrics can improve student performance by focusing their efforts on areas of evaluation. I feel rubrics will empower the students to achieve a higher grade during task performance and promote a more positive attitude during evaluation.

As part of my study of rubrics, I will be observing and reflecting on how the use of rubrics is promoting learning in our classroom. I will be collecting samples of student self-evaluations and peer evaluations based on the provided rubrics and comparing them to my assessment of the related tasks. I will be interviewing interested students in regard to their feelings about rubrics and their use as evaluation tools. The students may also complete surveys about rubrics. There will be no anticipated risks to student safety during the conducted research study.

All students in my classroom will use rubrics as part of the automotive curriculum; however participation in this study is entirely voluntary and will not affect a child's grade in any way. Any student may withdraw from the study at any time. If a child is withdrawn, I will not use any information pertaining to that child in my study.

All of the children's names will be kept confidential. Neither a child's name, nor the name of any student, faculty member, teacher, or public school will appear in any written report or publication of the study or its findings. Minor details of the students' works may be altered to ensure confidentiality. During the research study all materials will be secured in my home or school desk and at the conclusion all information will be destroyed.

My faculty sponsor is Dr. Charlotte Zales. She can be contacted at Moravian College by phone at (610) 625-7958 or e-mail at crzales@moravian.edu.

If you have any questions or concerns about my in-class project, please feel free to contact me at school by phone at (215) 343-2480 ext. 238, or contact me at mlemke@mbit.org. If not, please sign and return the bottom portion of this letter. Thank you for your help.

Sincerely,



Michael Lemke, Automotive Instructor

I attest that I am the principal of the teacher participating in the research study, and that I read and understand this consent form, and received a copy. Michael Lemke has my permission to conduct this research at Middle Bucks Institute of Technology, Jamison, PA.

Principal's signature: _____

Date: 05/10/06

Principal's signature: _____

Date: 5/11/06

APPENDIX B

MORAVIAN COLLEGE

July 10, 2006

Michael C. Lemke
102 Mountain Laurel Drive
Saylorsburg, PA 18353

Dear Michael C. Lemke:

The Moravian College Human Subjects Internal Review Board has accepted your proposal: Students Using Formative Rubrics to Evaluate Task Performance and Interpersonal Skills of Classmates and Themselves. Given the materials submitted, your proposal received an expedited review. A copy of your proposal will remain with the HSIRB Chair.

Please note that if you intend on venturing into other topics than the ones indicated in your proposal, you must inform the HSIRB about what those topics will be.

Should any other aspect of your research change or extend past one year of the date of this letter, you must file those changes or extensions with the HSIRB before implementation.

This letter has been sent to you through U.S. Mail and e-mail. Please do not hesitate to contact me by telephone (610-861-1415) or through e-mail (medwh02@moravian.edu) should you have any questions about the committee's requests.

Debra Wetcher-Hendricks
Chair, Human Subjects Internal Review Board
Moravian College
610-861-1415

APPENDIX C

April 07, 2006

Dear Parents,

During the 2006-2007 school year, I will be completing courses in partial fulfillment of a Master's degree in Curriculum and Instruction at Moravian College. These courses will help me stay in touch with the most effective methods of teaching in order to provide the best learning experience for your child.

Moravian's program requires that I conduct a systematic study of my own teaching practices through action research. The focus of my research this semester (September 7- December 15) is - The Impact of Formative Rubrics on Student Performance.

A rubric is an evaluation tool that identifies specific criteria and the level to which each was achieved during a student assessment. I hope that by working with formative rubrics prior to evaluation, students will have a better understanding of my expectations. I believe the use of rubrics can improve student performance by focusing their efforts on areas of assessment. I feel rubrics will empower the students to achieve a higher grade during task performance and promote a more positive attitude during evaluation.

All students in my classroom will use rubrics as part of the automotive curriculum; however participation in this study is entirely voluntary and will not affect your child's grade in any way. Your child may withdraw from the study at any time. If your child is withdrawn, I will not use any information pertaining to your child in my study.

All of the children's names will be kept confidential. Neither your child's name, nor the name of any student, faculty member, teacher, or public school will appear in any written report or publication of the study or its findings. Minor details of the students' works may be altered to ensure confidentiality. All research materials will be secured in my home or school desk and at the conclusion of the study all information will be destroyed.

My faculty sponsor is Dr. Charlotte Zales. She can be contacted at Moravian College by phone at (610) 625-7958 or e-mail at crzales@moravian.edu.

Our principals, Mr. Joseph Greb and Mrs. Kathy Strouse, support this study and may be contacted at school by phone at (215) 343-2480 ext 120 and 110 respectively.

If you have any questions or concerns about my in-class project, please feel free to contact me at school by phone at (215) 343-2480 ext. 238, or contact me at mlemke@mbit.org. If not, please sign and return the bottom portion of this letter. Thank you for your help.

Sincerely,

Michael Lemke, Automotive Instructor

I attest that I am the student's legally authorized representative, that I read and understand this consent form, and received a copy for my records.

Legal representative signature: _____

Child's name: _____

Date: _____

APPENDIX D

Rubric				
WORK SKILLS				
Created by: Mr. Lemke				
Date 4/27/2006				
	Unacceptable	Needs Improvement	Proficient	Distinguished
Task Performance	Failure to complete task performance	Demonstrated task completion to some degree but unable to meet industry standards	Demonstrated ability to complete task to industry standards	Demonstrated ability to complete task to industry standards within industry timelines
Service Information Usage	Displayed inability to access correct service information	Had some difficulty in accessing correct service information	Demonstrated ability to access correct service information	Displayed speed and accuracy while accessing the best source for service information
Tool Usage	Often used incorrect tools to complete task	Sometimes used incorrect tools to complete task	Used correct tools for completion of task	Made the best tool selection choices for task completion and demonstrated knowledge of tool care
Safety	Displayed an inadequate level of interpersonal skills and compliance with classroom/shop rules	Displayed an inconsistent level of interpersonal skills and compliance with classroom/shop rules	Consistently displayed appropriate interpersonal skills and followed classroom/shop rules	Consistently and independently displayed a high level of interpersonal skills and compliance with classroom/shop rules
Lab Cleanup	Failed to clean work area and put tools in designate storage location	Tools were put away and work area was cleaned to some degree	Work area was properly cleaned and all tools were put away	Student helped to clean additional work areas and put away tools left by others

APPENDIX E

Rubric				
EMPLOYABILITY SKILLS				
	Created by: Mr. Lemke		Date 4/27/2006	
	Unacceptable	Needs Improvement	Proficient	Distinguished
Learning Materials	Missing more than one item	Missing one item	Has all items: pen, pencil, notebook, textbooks and workbooks	Has all items in good condition and items are maintained in an organized manner
Written Assignments	Work not done	Incomplete work	Work completed on time	Work completed on time and of high quality
Time Management	Often off task	Sometimes off task	Consistently on task	Works independently on tasks, completes work in good time
Behavior	Displays an inadequate level of compliance with classroom rules	Displays an inconsistent level of compliance with classroom rules	Consistently follows classroom rules	Consistently and independently displays compliance with classroom rules
Character Traits	Displays an inadequate level of interpersonal skills	Displays an inconsistent level of interpersonal skills	Consistently displays appropriate interpersonal skills	Consistently and independently displays a high level of interpersonal skills

APPENDIX F

Self-Assessment

Name _____ Date _____

WORK SKILLS

Use the criteria on the rubric to evaluate yourself.

Distinguished	↓	Proficient	↓	Needs Improvement
↓	↓	↓	↓	Unacceptable
↓	↓	↓	↓	↓

Task Performance				
Service Information Usage				
Tool Usage				
Safety				
Lab Cleanup				

Student Comments:

Peer-Assessment

Name _____ Date _____

WORK SKILLS

Use the criteria on the rubric to evaluate yourself.

Distinguished	↓	Proficient	↓	Needs Improvement
↓	↓	↓	↓	Unacceptable
↓	↓	↓	↓	↓

Task Performance				
Service Information Usage				
Tool Usage				
Safety				
Lab Cleanup				

Peer Comments:

APPENDIX G

Self-Assessment

Name _____ Date _____

EMPLOYABILITY SKILLS

Distinguished
Proficient
Needs Improvement
Unacceptable

Use the criteria on the rubric to evaluate yourself.

Learning Materials					
Written Assignments					
Time Management					
Behavior					
Character Traits					

Student Comments:

Peer-Assessment

Name _____ Date _____

EMPLOYABILITY SKILLS

Distinguished
Proficient
Needs Improvement
Unacceptable

Use the criteria on the rubric to evaluate yourself.

Learning Materials					
Written Assignments					
Time Management					
Behavior					
Character Traits					

Peer Comments:

APPENDIX H

Date	Time	
Participants-		1
1	This is a two column format	47 This is the second column
2	Enter your observations here	48 Enter your reflections about what
3		49 happened here.
4		50
5		51
6		52
7		53
8		54
9		55
10		56
11		57
12		58
13		59
14		60
15		61
16		62
17		63
18		64
19		65
20		66
21		67
22		68
23		69
24		70
25		71
26		72
27		73
28		74
29		75
30		76
31		77
32		78
33		79
34		80
35		81
36		82
37		83
38		84
39		85
40		86
41		87
42		88
43		89
44		90
45		91
46		92

APPENDIX I

October 20, 2006

Appendix I

Name _____

WHY DID YOU GIVE ME THAT GRADE?

Answer the following questions using full sentences and addressing all parts.

1. Were you prepared to learn each day?
Workbook / textbook / uniform / homework / good attitude / appropriate behavior

2. Did you help your partner or did you disturb his/her learning?

3. Did you and your partner focus on your assigned shop project or did you wander just watching others?

4. Did you document your learning each day in your work record or did you wait and only do it when there was not an excuse?

5. Did you follow school / classroom / shop rules to the best of your ability?

6. Did you pay attention?

7. What must you do to improve your grade?

APPENDIX J

December 15, 2006

Appendix J

Name _____

RUBRIC EVALUATION SURVEY

Circle your rating

- | | |
|---|-----------|
| 1. The rubrics were received prior to the assignment. | 5 4 3 2 1 |
| 2. The rubrics were explained to me clearly. | 5 4 3 2 1 |
| 3. The rubrics were easy to understand. | 5 4 3 2 1 |
| 4. The rubrics helped me to be better prepared. | 5 4 3 2 1 |
| 5. The rubrics helped me to understand teacher expectations. | 5 4 3 2 1 |
| 6. I understand how the rubrics are used to assess my performance. | 5 4 3 2 1 |
| 7. The rubrics helped me to know when I was off task. | 5 4 3 2 1 |
| 8. The rubrics are a more accurate measurement of my performance. | 5 4 3 2 1 |
| 9. The rubrics helped me to improve my partners work skills and employability skills. | 5 4 3 2 1 |
| 10. I want to be evaluated using the rubrics. | 5 4 3 2 1 |

Rating Scale:

5 = strongly agree 4 = mostly agree 3 = agree 2 = mostly disagree 1 = strongly disagree

Comments:

APPENDIX K

Teacher Assessment

Name _____ Date _____

EMPLOYABILITY SKILLS

Distinguished	↓			
Proficient	↓			
Needs Improvement	↓			
Unacceptable	↓			
Learning Materials				
Written Assignments				
Time Management				
Behavior				
Character Traits				

Teacher Comments:

Teacher Assessment

Name _____ Date _____

WORK SKILLS

Distinguished	↓			
Proficient	↓			
Needs Improvement	↓			
Unacceptable	↓			
Task Performance				
Service Information Usage				
Tool Usage				
Safety				
Lab Cleanup				

Teacher Comments:

APPENDIX L

Rubric				
WORK SKILLS				
Created by: Mr. Lemke				
Date 4/27/2006				
	Unacceptable	Needs Improvement	Proficient	Distinguished
Task Performance	Failure to complete task performance	Demonstrated task completion to some degree but unable to meet industry standards	Demonstrated ability to complete task to industry standards	Demonstrated ability to complete task to industry standards within industry timelines
Service Information Usage	Displayed inability to access correct service information	Had some difficulty in accessing correct service information	Demonstrated ability to access correct service information	Displayed speed and accuracy while accessing the best source for service information
Tool Usage	Often used incorrect tools to complete task	Sometimes used incorrect tools to complete task	Used correct tools for completion of task	Made the best tool selection choices for task completion and demonstrated knowledge of tool care
Safety	Displayed an inadequate level of interpersonal skills and compliance with classroom/shop rules	Displayed an inconsistent level of interpersonal skills and compliance with classroom/shop rules	Consistently displayed appropriate interpersonal skills and followed classroom/shop rules	Consistently and independently displayed a high level of interpersonal skills and compliance with classroom/shop rules
Lab Cleanup	Failed to clean work area and put tools in designate storage location	Tools were put away and work area was cleaned to some degree	Work area was properly cleaned and all tools were put away	Student helped to clean additional work areas and put away tools left by others
Points	0	5	15	20

APPENDIX M

EMPLOYABILITY SKILLS				
Rubric				
Created by: Mr. Lemke				
Date 4/27/2006				
	Unacceptable	Needs Improvement	Proficient	Distinguished
Learning Materials	Missing more than one item	Missing one item	Has all items: pen, pencil, notebook, textbooks and workbooks	Has all items in good condition and items are maintained in an organized manner
Written Assignments	Work not done	Incomplete work	Work completed on time	Work completed on time and of high quality
Time Management	Often off task	Sometimes off task	Consistently on task	Works independently on tasks, completes work in good time
Behavior	Displays an inadequate level of compliance with classroom rules	Displays an inconsistent level of compliance with classroom rules	Consistently follows classroom rules	Consistently and independently displays compliance with classroom rules
Character Traits	Displays an inadequate level of interpersonal skills	Displays an inconsistent level of interpersonal skills	Consistently displays appropriate interpersonal skills	Consistently and independently displays a high level of interpersonal skills
Points	0	5	15	20

APPENDIX N

ISO Work Instruction Number 1300.AMT.08 October 2006

CLASSROOM GUIDELINESLemke-Auto Tech
Room 404**RULES**

1. FOLLOW DIRECTIONS FIRST TIME GIVEN
2. OBSERVE PROCEDURES (SHOP-SCHOOL-CLASSROOM)
3. COME PREPARED TO CLASS (UNIFORM-WORKSHOES-SAFETAY GLASSES-SUPPLIES)
4. PERFORM QUALITY WORK AND MAINTAIN A POSITIVE ATTITUDE
5. NO SWEARING, NO PUT DOWNS

REWARDS

1. FREEDOM TO DO PERSONAL PROJECTS
2. POSITIVE CALL TO PARENTS
3. VERBAL OR WRITTEN RECOGNITION
4. ADDITIONAL CREDIT POINTS, NO HOMEWORK PASSES
5. DROP LOWEST GRADE

CONSEQUENCES

1. VERBAL WARNING, WRITTEN RECORD
2. WRITTEN ASSIGNMENT, WRITTEN RECORD
3. PARENT CONTACT
4. SIC, PARENT CONTACT
5. SIC, DETENTION, PARENT CONTACT
6. SIC, OUT OF SCHOOL SUSPENSION, PARENT CONTACT

APPENDIX O

ISO Instruction Number 1300.AMT.06 Oct 2006

PROCEDURES TO REHEARSE WITH STUDENTS

- Entering the classroom
- Getting to work immediately
- When you are tardy
- End of period class dismissal
- Listening to/responding to questions
- Participating in class discussions
- When you need pencil/paper
- Keeping your desk orderly
- Checking out classroom materials
- Indicating whether you understand
- Coming to attention
- When you are absent
- Working cooperatively
- Changing groups
- Keeping your notebook
- Going to the office
- When you need help/conferencing
- Knowing the schedule for the day/class
- Keeping a progress report/work record
- Finding directions for each assignment
- Passing in papers
- Returning student work
- Getting materials without disturbing others
- Moving about the room
- When you finish early
- Returning to task after interruption
- When asking a question
- When a school-wide announcement is made
- Walking in the hall during classroom
- If the teacher is out of the classroom
- If you are suddenly ill
- Saying, "Thank you"

Adapted from (Wong & Wong, 2000)

APPENDIX P**GETTING STARTED**

1. Report to the classroom.
2. Sign in and check the board for specific instructions.
3. Get textbook, workbook, pen, and notebook from locker.
4. Sit in assigned seat.
5. Complete work record.
6. Begin assignment on board, work quietly.
7. Act appropriately and do not distract other students.
8. Do not hang out in shop or locker areas.
9. Put studies away and follow theory lesson or activity when instructor begins.
10. After lesson, video, or presentation, bring your work record to the instructor to grade.
11. Report to assigned shop area.
12. Report to assigned seat for dismissal at the end of the day.

APPENDIX Q**WORKING IN THE AUTO SHOP**

1. Students must have a complete uniform to work in the shop.
2. All students without uniforms will work in the classroom.
3. Report to your assigned shop area and the instructor will come to you on a rotating schedule.
4. If you have a specific question that is preventing you from proceeding with your activity, come to the instructor for an answer.
5. Act in a professional manner at all times and do not yell, throw objects or display inappropriate behavior.
6. Sign out all tools with the instructor.
7. Do not wander outside the shop or into other student's work areas.
8. Treat all vehicles with care, as students are responsible for any damage to vehicles as a result of negligence or abuse.
9. Always use fender and seat covers when working on vehicles. Do not place materials or your person in or on the autos.
10. Always use the correct tool and procedure for the job, as misuse may cause tool or part damage.
11. Clean your shop area and return all tools before preparing for class dismissal.
12. Treat your fellow classmates and the teacher with respect and

APPENDIX R

9/22/2006					
TES	SES	PES	TWS	SWS	PWS
75	75	75	65	75	65
65	65	65	65	65	65
75	75	75	80	85	85
80	85	85	70	80	65
85	85	90	70	70	100
90	100	90	80	90	90
80	80	90	85	90	90
80	75	85	80	85	85
80	75	80	80	80	80
75	75	75	70	75	65
80	80	85	80	80	85
100	100	100	90	100	100
75	75	75	75	80	80
80	85	80	75	85	80
75	75	75	70	75	75
50	25	100	50	25	95
100	100	100	90	95	95
75	75	83.8	75.0	75	82.4
78.9	78.1			78.3	
Week #1 Mean					

9/25/2006						9/26/2006					
TES	SES	PES	TWS	SWS	PWS	TES	SES	PES	TWS	SWS	PWS
75	75	75	65	65	75	100	100	100	100	100	100
25	25	80	25	25	75	75	75	55	75	75	75
80	80	80	75	80	75	75	75	75	75	75	65
80	80	80	75	75	80	75	75	75	75	75	75
75	75	75	70	75	55	100	100	100	90	100	100
95	100	100	100	100	100	90	95	90	90	100	100
95	100	100	100	100	100	90	100	100	100	100	100
75	75	65	70	70	65	100	100	100	100	100	100
100	100	100	90	100	100	75	75	75	80	75	75
100	100	100	90	100	100	70	75	65	75	75	75
80	80	80	80	80	80	70	75	75	75	75	75
90	90	90	85	85	85	75	75	75	70	75	75
75	75	75	75	75	75	75	75	85	75	75	85
85	85	95	85	85	95	80	85	75	75	75	75
100	100	85	90	100	80	80	80	85	80	80	80
75	75	75	75	75	75	70	65	75	65	65	75
75	75	85	75	75	85	85	85	100	85	90	100
75	75	75	75	75	75	90	100	100	90	100	100
95	100	100	100	100	100	90	100	100	90	100	100
90	100	100	100	100	100	90	90	90	80	80	85
75	75	75	75	75	75	80	80	100	85	85	100
75	75	75	75	75	75	82.6	84.8	85.5	82.4	84.5	86.4
81.4	82.5	84.8	79.5	81.4	83.0						

TES	SES	PES	TWS	SWS	PWS
81.4	82.5	84.8	79.5	81.4	83
82.6	84.8	85.5	82.4	84.5	86.4
82.0	83.7	85.2	81.0	83.0	84.7
Week #2 Mean					

10/2/2006						10/3/2006					
TES	SES	PES	TWS	SWS	PWS	TES	SES	PES	TWS	SWS	PWS
75	75	75	75	75	75	85	85	85	85	80	85
80	75	75	75	75	75	80	80	80	85	85	85
80	75	75	75	75	75	100	100	100	100	100	100
75	75	75	75	75	75	80	80	75	85	90	75
80	80	80	80	80	80	85	85	90	90	90	90
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	75	75	75	75	75	75
85	85	85	85	85	75	60	55	65	60	55	65
100	100	100	100	100	100	75	75	75	75	75	75
100	100	100	100	100	100	100	100	100	95	95	95
80	75	75	80	75	75	75	75	75	75	75	75
85	75	75	80	75	75	80	75	85	85	75	90
85	80	75	80	80	80	75	95	55	90	95	75
80	75	75	80	75	80	90	90	100	90	90	100
80	75	80	80	75	80	85	90	75	90	95	75
85	85	85	85	85	85	100	100	100	100	100	100
75	75	75	75	75	75	100	100	100	100	100	100
75	75	75	75	75	75	80	75	80	75	75	90
84.4	82.2	82.2	83.3	82.2	82.2	84.7	85.3	84.2	86.4	86.1	86.1

TES	SES	PES	TWS	SWS	PWS
84.4	82.2	82.2	83.3	82.2	82.2
84.7	85.3	84.2	86.4	86.1	86.1
85.8	85.3	86.1	85.3	83.9	85.8
85.0	84.3	84.2	85.0	84.1	84.7

Week #3 Mean

10/6/2006					
TES	SES	PES	TWS	SWS	PWS
75	75	75	75	75	75
75	75	75	75	75	75
80	80	80	80	80	80
75	75	75	75	75	75
95	95	95	90	85	90
75	75	75	75	75	75
85	85	75	80	75	80
85	80	85	80	75	85
100	100	100	100	100	100
80	85	80	85	85	80
90	90	90	85	85	85
100	100	100	100	100	100
100	100	100	100	100	100
95	100	100	100	100	100
75	75	75	75	75	75
75	75	75	75	75	75
80	75	80	80	75	80
100	100	100	100	100	100
90	80	100	90	85	100
85.8	85.3	86.1	85.3	83.9	85.8

10/9/2006					
TES	SES	PES	TWS	SWS	PWS
75	75	75	75	75	75
75	75	75	75	75	75
75	75	75	85	85	85
75	75	65	75	75	75
100	100	100	100	100	100
70	65	65	65	65	65
75	75	75	85	85	75
100	100	100	90	90	90
95	95	95	80	80	80
100	80	100	90	80	100
100	100	100	100	100	100
90	85	90	95	95	95
75	75	75	75	75	75
80	75	75	80	75	75
80	75	75	80	75	75
80	75	75	75	75	75
75	75	75	75	75	75
75	75	75	75	75	75
83.1	80.6	81.4	81.9	80.8	81.4

Week #4 Mean

10/16/2006						10/17/2006					
TES	SES	PES	TWS	SWS	PWS	TES	SES	PES	TWS	SWS	PWS
75	75	75	75	75	75	75	75	75	75	75	75
100	100	100	100	100	100	100	100	95	100	100	95
75	75	75	70	70	70	75	65	100	75	65	100
75	75	75	75	75	75	75	75	55	75	75	75
75	75	75	75	75	75	65	65	65	75	75	75
100	100	100	90	90	100	65	75	55	75	75	75
75	75	75	75	75	75	95	95	95	80	80	80
90	90	95	80	80	80	75	75	75	75	75	75
90	100	100	90	90	90	100	100	100	95	95	95
75	80	80	80	80	80	75	75	75	75	75	75
25	25	25	25	25	25	75	75	75	75	75	75
75	75	75	75	75	75	100	100	100	100	100	100
75	75	75	75	75	75	75	75	75	75	75	75
85	85	90	85	85	90	75	75	75	75	75	75
75	75	75	75	75	75	85	75	100	85	75	100
35	35	35	50	45	75	85	100	75	90	95	90
90	90	90	90	90	90	75	75	65	75	75	55
90	90	90	90	90	90	75	75	75	75	75	75
100	100	100	90	100	100	75	75	75	70	70	70
80	75	75	75	75	75	25	25	25	25	25	25
78	78.5	79	77	77.25	79.5	75	75	75	78	75	75
						77.1	77.4	76.4	77.3	76.4	77.9

TES	SES	PES	TWS	SWS	PWS
78	78.5	79	77	77.3	79.5
77.1	77.4	76.4	77.3	76.4	77.9
78.9	80.6	84.2	76.7	80	83.3
78.0	78.8	79.9	77.0	77.9	80.2

Week #5 Mean

10/18/2006					
TES	SES	PES	TWS	SWS	PWS
75	75	85	75	75	85
75	75	75	75	75	75
100	100	100	100	100	100
75	75	75	75	75	75
80	100	75	75	100	75
80	85	85	80	80	80
80	75	100	75	75	100
75	75	75	75	75	75
100	100	100	100	100	100
90	95	95	85	95	95
90	95	100	80	90	90
75	75	75	75	75	75
75	75	75	70	75	75
75	75	75	75	75	75
100	100	100	90	100	100
25	25	75	25	25	75
75	75	75	75	75	75
75	75	75	75	75	75
78.9	80.6	84.2	76.7	80.0	83.3

10/23/2006					
TES	SES	PES	TWS	SWS	PWS
90	100	90	90	100	90
85	95	95	90	90	90
85	95	95	85	90	90
75	80	100	75	75	100
90	100	100	100	100	100
70	75	75	75	75	75
100	100	100	100	100	100
70	80	70	80	80	80
75	75	75	75	75	75
100	100	100	90	100	85
75	75	75	70	75	75
75	75	75	70	75	75
65	75	75	70	75	75
90	100	100	90	100	100
75	75	75	75	75	75
70	75	75	75	75	75
70	75	75	75	75	75
90	100	100	100	100	100
80	85	85	75	90	75
70	75	75	75	75	75
80.0	85.5	85.5	81.8	85.0	84.3

Week #6 Mean

10/30/2006						11/2/2006					
TES	SES	PES	TWS	SWS	PWS	TES	SES	PES	TWS	SWS	PWS
80	80	100	75	75	100	75	75	75	70	75	75
70	75	75	75	75	75	100	100	100	100	100	100
70	75	75	75	75	75	100	100	100	90	100	100
90	100	100	100	100	100	75	75	75	75	75	75
80	95	55	70	80	65	75	75	75	70	75	75
73	75	75	70	75	75	80	80	80	80	80	80
85	95	95	80	90	90	85	100	85	80	100	85
80	100	75	80	100	75	70	75	75	75	75	75
80	90	90	85	85	85	60	75	65	70	75	65
90	100	100	100	100	100	80	90	95	85	95	95
75	80	80	80	80	80	100	100	100	100	100	100
60	75	75	75	75	75	90	100	100	75	85	85
90	100	100	90	100	100	82.5	87.1	85.4	80.8	86.3	84.2
100	100	100	85	90	85						
75	85	90	80	80	90						
80	95	100	80	80	100						
70	75	75	75	75	75						
70	75	75	75	75	75						
78.8	87.2	85.3	80.6	83.9	84.4						

TES	SES	PES	TWS	SWS	PWS
78.8	87.2	85.3	80.6	83.9	84.4
82.5	87.1	85.4	80.8	86.3	84.2
75.5	76.1	74.3	72.7	74.8	73.9
78.9	83.5	81.7	78.0	81.7	80.8

Week #7 Mean

11/3/2006					
TES	SES	PES	TWS	SWS	PWS
80	85	75	75	80	75
80	75	85	75	75	75
75	75	75	75	75	75
75	75	65	75	80	75
75	75	75	70	75	75
75	75	75	75	75	75
90	90	90	90	90	90
50	65	25	50	75	25
75	75	75	75	75	75
25	25	35	25	25	25
75	75	75	75	75	75
95	95	95	95	95	95
75	75	75	75	75	75
75	75	75	75	75	75
25	25	25	25	25	25
80	80	75	75	75	75
90	100	85	90	100	85
100	100	100	100	100	100
80	80	80	80	80	80
75	75	75	75	75	75
90	80	100	50	45	100
100	100	100	100	100	100
75.5	76.1	74.3	72.7	74.8	73.9

11/13/2006						11/14/2006					
TES	SES	PES	TWS	SWS	PWS	TES	SES	PES	TWS	SWS	PWS
75	75	75	75	75	75	100	100	100	75	75	75
100	100	100	75	75	75	25	25	25	25	25	25
100	100	100	100	100	100	75	75	100	75	75	100
80	80	80	75	75	75	75	75	75	100	100	100
80	80	80	75	80	80	25	25	25	25	25	25
75	75	75	75	75	75	50	100	25	70	75	75
50	75	25	70	75	25	100	100	100	90	100	100
100	100	100	100	100	100	75	75	75	75	75	75
90	100	100	90	100	100	100	100	100	100	100	100
75	75	75	75	75	75	90	100	100	90	100	100
90	100	100	70	25	100	75	75	75	80	100	75
90	100	100	90	100	100	95	100	100	75	75	75
90	100	100	90	100	100	75	75	75	75	75	75
60	25	75	60	25	75	75	75	75	75	75	75
75	75	75	75	75	75	90	100	100	100	100	100
100	100	100	70	100	75	75	75	75	70	75	75
70	75	75	70	75	75	60	25	75	50	25	100
70	75	75	70	75	25	70	75	75	70	75	75
70	75	75	70	75	75	75	75	75	70	75	75
70	75	75	70	75	75	70	75	75	40	25	75
75	75	75	70	75	75	95	100	100	90	100	100
80.2	82.6	82.6	76.9	77.6	77.6	75	75	75	65	75	75
						74.8	77.3	77.3	72.0	73.9	79.5

TES	SES	PES	TWS	SWS	PWS
80.2	82.6	82.6	76.9	77.6	77.6
74.7	77.3	77.3	72	73.9	79.6
81.4	84.7	81.9	78.3	79.2	84.7
83.5	89.7	88.2	81.2	88.2	88.2
80.0	83.6	82.5	77.1	79.7	82.5

Week #8 Mean

	11/15/2006					11/16/2006						
TES	SES	PES	TWS	SWS	PWS	TES	SES	PES	TWS	SWS	PWS	
75	75	75	75	75	75	75	75	75	70	75	75	
75	75	75	75	75	75	100	100	100	95	100	100	
75	75	25	75	75	75	90	100	75	70	75	75	
100	100	100	100	100	100	75	75	75	60	75	75	
25	25	25	45	25	75	70	75	75	65	75	75	
90	100	100	75	75	75	65	75	75	70	75	75	
90	100	100	80	75	100	85	100	100	90	100	100	
90	100	100	90	100	100	90	100	100	85	100	100	
90	100	100	70	75	75	90	100	100	70	75	75	
100	100	100	70	75	75	100	100	100	85	100	100	
75	75	75	70	75	75	90	100	100	90	100	100	
75	75	75	80	75	100	70	75	75	100	100	100	
75	75	75	75	75	75	75	75	75	70	75	75	
95	100	100	90	100	100	75	75	75	75	75	75	
70	75	75	75	75	75	90	100	100	90	100	100	
75	75	75	80	75	75	90	100	100	95	100	100	
95	100	100	90	100	100	90	100	100	100	100	100	
95	100	100	95	100	100	83.5	89.7	88.2	81.2	88.2	88.2	
81.4	84.7	81.9	78.3	79.2	84.7							

	11/29/2006					11/30/2006					
TES	SES	PES	TWS	SWS	PWS	TES	SES	PES	TWS	SWS	PWS
80	80	100	75	75	100	80	90	95	80	95	95
75	75	75	50	45	75	100	100	100	100	100	100
60	75	45	70	80	65	65	75	75	70	75	75
70	65	75	60	65	75	70	75	75	75	95	75
90	95	95	85	90	90	85	95	95	80	85	85
90	95	95	95	90	90	70	75	75	75	75	75
75	75	75	80	75	90	70	75	75	70	75	75
70	75	75	75	75	75	75	75	75	70	75	65
75	75	100	75	75	100	90	100	100	95	100	100
75	75	75	75	75	75	85	90	80	85	85	85
75	75	75	70	75	75	90	95	95	85	90	85
75	75	75	70	75	75	70	75	75	75	75	75
90	90	95	90	95	95	75	75	75	65	75	75
70	75	75	70	75	75	65	75	75	70	75	75
90	95	95	85	95	95	100	100	100	90	100	90
95	90	90	90	90	90	85	90	100	85	100	100
75	100	55	80	100	65	90	100	100	80	100	75
80	85	95	90	90	90	70	75	75	75	75	75
78.3	81.7	81.4	76.9	80.0	83.1	79.7	85.3	85.6	79.2	86.1	82.2

TES	SES	PES	TWS	SWS	PWS
78.3	81.7	81.4	76.9	80	83.1
79.7	85.3	85.6	79.1	86.1	82.2
79.0	83.5	83.5	78.0	83.1	82.7

Week #9 Mean

12/5/2006						12/6/2006					
TES	SES	PES	TWS	SWS	PWS	TES	SES	PES	TWS	SWS	PWS
75	75	75	70	75	75	100	100	100	75	75	75
90	95	95	80	85	85	75	75	75	75	75	75
75	75	75	75	75	75	75	100	75	85	100	75
75	75	75	75	75	75	70	75	75	75	75	75
85	85	85	75	85	85	90	100	80	100	100	100
80	95	65	100	100	95	85	90	100	90	90	100
100	100	100	100	100	100	90	100	95	90	85	90
60	65	55	60	75	75	70	75	75	75	75	75
75	75	75	75	75	75	70	75	75	70	75	75
85	90	100	80	90	95	75	75	75	90	100	100
80	80	80	80	80	85	90	100	100	85	100	95
100	100	100	90	100	100	90	100	100	75	80	80
75	75	75	90	100	100	75	80	80	75	80	80
75	75	75	70	75	75	65	75	75	65	75	75
90	100	100	90	100	100	90	95	90	90	100	100
75	75	100	75	75	100	100	95	95	85	95	95
80	100	75	75	100	75	81.9	88.1	85.3	81.3	86.3	85.3
95	95	95	90	90	90						
90	95	90	80	90	90						
82.1	85.5	83.7	80.5	86.6	86.8						

82.1	85.5	83.7	80.5	86.6	86.8
81.9	88.1	85.3	81.3	86.3	85.3
82.0	86.8	84.5	80.9	86.5	86.1

Week #10 Mean

APPENDIX S

Am I Doing My Best (Questionnaire #1)							
Student	Question						
	#1	#2	#3	#4	#5	#6	#7
#1	1	1	1	1	1	1	1
#2	0	0	0	0	0	0	0
#3	1	1	1	1	1	1	0
#4	1	1	1	1	1	1	1
#5	0	0	0	0	0	0	0
#6	1	1	1	1	1	1	0
#7	1	1	1	1	1	1	0
#8	1	1	1	1	1	1	0
#9	1	1	1	1	1	1	0
#10	1	1	1	1	1	0	0
#11	1	1	1	0	0	1	0
#12	1	1	1	1	1	1	0
#13	1	1	1	1	1	1	0
#14	1	1	1	1	1	1	0
#15	1	1	1	1	1	1	0
#16	1	1	1	1	1	1	1
#17	1	1	1	1	1	1	1
#18	1	1	1	1	1	1	0
#19	1	1	0	1	0	0	0
#20	1	1	1	0	1	1	0
MEAN	0.90	0.90	0.85	0.80	0.80	0.80	0.20
YES	18	18	17	16	16	16	4
N/I	2	2	3	4	4	4	16

Am I Doing My Best (Questionnaire #2)							
Student	Question						
	#1	#2	#3	#4	#5	#6	#7
#1	1	1	1	1	1	1	0
#2	1	1	1	0	0	1	0
#3	1	1	1	1	1	1	0
#4	1	1	1	1	1	1	1
#5	1	1	1	1	1	1	0
#6	1	1	1	1	1	1	0
#7	1	0	1	0	0	0	0
#8	1	1	1	1	1	1	0
#9	1	1	1	1	1	1	0
#10	1	1	1	1	0	1	0
#11	1	1	1	1	1	1	0
#12	1	1	0	1	1	1	0
#13	1	1	1	1	1	1	0
#14	1	1	1	1	1	1	0
#15	1	1	1	1	1	1	0
#16	1	1	1	1	1	1	0
#17	1	1	1	1	1	1	0
#18	1	1	1	1	1	1	1
#19	1	1	1	1	1	1	1
#20	1	1	1	1	1	1	0
MEAN	1.00	0.95	0.95	0.90	0.85	0.95	0.15
YES	20	19	19	18	17	19	3
N/I	0	1	1	2	3	1	17

Am I Doing My Best (Questionnaire #3)							
Student	Question						
	#1	#2	#3	#4	#5	#6	#7
#1	1	1	1	1	1	1	0
#2	1	1	1	1	1	1	0
#3	1	1	1	1	1	1	0
#4	1	1	1	1	1	1	0
#5	1	1	1	1	1	1	0
#6	1	1	1	1	1	1	0
#7	1	1	1	1	1	1	0
#8	1	1	1	1	1	1	0
#9	1	1	1	1	1	1	0
#10	1	1	1	1	1	1	1
#11	1	1	1	1	1	1	1
#12	1	1	1	1	1	1	0
#13	1	1	1	1	1	1	0
#14	1	1	1	1	1	0	0
#15	1	1	1	1	1	1	0
#16	1	1	1	1	1	1	1
#17	1	1	1	1	1	1	1
#18	1	1	1	1	1	1	0
#19	1	1	1	1	1	1	0
#20	1	1	1	1	1	1	1
#21	1	1	1	1	1	1	0
MEAN	1.00	1.00	1.00	1.00	1.00	0.95	0.24
YES	21	21	21	21	21	20	5
N/I	0	0	0	0	0	1	16

APPENDIX T

Rubric Evaluation Survey-Standard Deviation and Mean											
Student	Question										MEAN
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	
#1	4	3	4	4	5	3	5	3	4	4	3.9
#2	4	3	3	3	4	4	3	4	3	4	3.5
#3	5	3	3	2	3	4	3	3	2	2	3
#4	5	3	3	2	2	3	2	2	3	2	2.7
#5	4	3	3	2	4	3	4	3	4	1	3.1
#6	3	3	3	3	3	3	3	3	3	1	2.8
#7	5	5	5	4	4	5	4	4	5	4	4.5
#8	4	3	4	5	5	5	4	5	5	3	4.3
#9	5	5	4	5	4	4	3	4	3	3	4
#10	5	5	4	4	4	5	4	3	3	3	4
#11	5	5	5	5	4	4	3	3	2	4	4
#12	5	5	5	1	4	5	3	5	3	5	4.1
#13	5	5	4	4	5	5	4	5	4	3	4.4
#14	4	4	4	2	4	4	3	3	2	3	3.3
#15	5	5	5	2	5	4	3	4	2	3	3.8
#16	4	4	3	3	4	3	4	3	3	2	3.3
#17	3	4	3	2	3	4	4	3	3	2	3.1
#18	5	5	5	5	5	5	5	5	5	5	5
MEAN	4.4	4.1	3.9	3.2	4.0	4.1	3.6	3.6	3.3	3.0	
STDEV	0.70	0.94	0.83	1.31	0.84	0.80	0.78	0.92	1.02	1.19	