Measuring life skills, hope, and academic growth at project-based learning schools

Scott Wurdinger
Minnesota State University, Mankato, USA

Ron Newell
EdVisions, USA

En Sun Kim
Minnesota State University, Mankato, USA

Abstract

Eleven project-based learning charter schools participated in this correlational study. Eight have participated for 2 years and three for 1 year. The schools are affiliated with EdVisions, a non-profit organization that helps create individualized, project-based learning schools. There were five variables in this correlational study: the hope survey, self-direction rubric, collaboration rubric, math RIT scores, and reading Rasch UnIT (RIT) scores. This study compared two variables at a time in attempts to determine relationship strengths. For example, hope and math, hope and reading, hope and self-direction, hope and collaboration, and so on. Growth occurred in all five variables over a 2-year period for eight schools, as well as a 1-year period for three schools. Although the hope and reading correlation, with an N of 340, was not significant with a correlation of .07, the researchers found that all other combinations of variables were significant with a *p value* <.01! It is evident that hope and life skills, such as self-direction and collaboration, positively impact academic achievement with math and reading test scores.

Introduction

Imagine if students could work on projects in all their classes, and ask as many questions as they like while practicing skills such as problem solving, critical thinking, time management, and responsibility. According to Pearlman (2009), students need a different set of skills that include

Corresponding author:
Scott Wurdinger, Experiential Learning and Leadership Studies, Minnesota State University, 115 Armstrong Hall, Mankato, Mankato, MN 56001, USA.
Email: scott.wurdinger@mnsu.edu

learning and thinking skills, technology literacy skills, and life skills in order to compete in the future, and that these skills can best be obtained through project-based learning. Educators should give students opportunities to participate in project-based learning so they can practice these skills.

Although project-based learning is an intensive learning process that requires more time to accomplish, it allows for deeper learning, which inspires and motivates students. The learning is rich. Students learn useful skills that they carry with them after they graduate, which have a lasting effect on their lives.

Multiple research studies suggest that when students are engaged in creating and completing projects, they learn important life skills such as problem solving, time management, responsibility, and collaboration (Blumenfeld et al., 1991; Grant & Branch, 2005; Larmer et al., 2015; Levine, 2002; Littky & Grabelle, 2004; Newell, 2003; Wurdinger, 2016). In addition, Krauss and Boss (2013, p. 18) identified a number of skills that students learn while engaged in project-based learning including flexibility, organization, self-control, task initiation, time management, and metacognition. Increasingly, K-12 teachers around the world are beginning to use this method because they know it challenges students on an individual level, motivating and inspiring them by tapping into their own learning styles (Bender, 2012).

Other researchers have analyzed teacher acceptance, student motivation, and student achievement, and have come to the conclusion that project-based learning is an effective teaching methodology. For example, a study conducted by Barron et al. (1998) discovered that academic performance and motivation are improved when using this method. In their comprehensive study, they had students create blueprints of chairs and playhouses, and then present these drawings to their classmates. They measured low-, average-, and high-achieving students and found all three groups had significant improvements in their ability to understand difficult math concepts after using the project method. This approach to learning not only had a significant impact on their comprehension, but it also had a positive impact on their motivation. Fifty percent of the students interviewed about their experience specifically mentioned the projects were a very important part of their school year (p. 305).

Ultimately, project-based learning is a teaching method that allows students to apply what they are learning and are assessed by demonstrating their knowledge. Students in project-based learning schools are often required to demonstrate what they know through designing and creating projects, which they present to their peers and to adults, and are then evaluated with performance-based assessments. This process allows students to meet academic standards related to their projects, but it also allows them to learn life skills like self-direction and collaboration, and acquire hope for the future.

Since 1992, reports and research studies have identified specific skills such as problem solving, critical thinking, adaptability, creativity, time management, and collaboration that employers desire but are lacking in their young new hires (National Association of Colleges and Employers, 2016; SCANS, 1992; Trilling & Fadel, 2009; Wagner, 2008). Project-based learning allows students to learn life skills that they can carry with them long after they graduate from school (Meyer & Wurdinger, 2016).

The purpose of this research study was twofold. One was to determine growth in five variables including math, reading, self-direction, collaboration, and hope scores with students attending project-based learning schools. Second, it was to correlate these variables to each other to determine relationship strengths. The study was conducted with students attending charter schools affiliated with EdVisions, which is a non-profit educational development organization focused on innovation through personalization, teacher and student empowerment, and student-driven project-based learning. The following provides a brief explanation of the EdVisions organization.

EdVisions

EdVisions is a disruptive organization that creates new schools and transforms others. In 2001, the Bill and Melinda Gates Foundation awarded a grant to EdVisions for the purpose of replicating the Project-Based Learning model that was used at Minnesota New Country School in Henderson, Minnesota. Since 2001, EdVisions Inc. has helped create and redesign numerous schools modeled after their design essentials.

EdVisions, Inc. design essentials are characterized by four main themes: (1) a self-directed, project-based learning program; (2) a student-centered democratic culture; (3) the use of authentic assessment; and (4) teacher ownership and accountability (Newell & Van Ryzin, 2007, p. 468). Student-initiated projects are the centerpiece of EdVisions' schools. Students create and design their own projects with the help of their advisors, and when completed, are given credits that are aligned with the state academic standards.

Project-based learning is at the core of the curriculum for all these schools. Students start the school day by meeting with their advisory group, which consists of 10 to 15 peers and their teacher, typically called an advisor. After the meeting, they are work on their projects the rest of the day. Advisors act as guides helping students get the necessary resources they need to work and complete their projects.

Project-based learning at these schools requires continuous conversation, discussion, and evaluation between advisors and students. Students identify a project they would like to do, fill out a project proposal form, negotiate the details of the project with their advisors and advisory committee, do the project, and when they finish, present it to their advisory committee. Much of the time, students work alone on their own projects, primarily because of their own specific interests; however, students are allowed to collaborate when they have similar interests in a project.

Projects are broad ranging and might include things like construction projects, designing websites, creating videos and movies, artwork, or community projects. Depending upon their complexity, these projects may take a few days or several months to complete. When students finish a project, they demonstrate their level of understanding by doing a presentation for their advisory group, who consist of peers, advisors, community members, and parents. After the presentation, advisors and students sit down together and discuss what curriculum state standards have been met, and how many credits they will receive for their work. In their senior year, students complete a 300- to 350-hour senior project followed by a public presentation.

EdVisions believes project-based learning is an effective way for students to learn life skills. When taught correctly, students become immersed in projects that involve confronting numerous problems along the way. Project-based learning encapsulates problem-based learning because a good project, which results in a product, requires multiple trial-and-error episodes. For example, building a nesting box for wood ducks requires students to do research on how to build it and where to place it in the woods to optimize the potential for ducks to use it. Students must also figure out what type of wood to use, take measurements, use tools to cut the wood, build it, and figure out where and how to connect it to a tree. Projects must be complex enough so that students go through multiple problem-solving episodes before the project is finished. Failure is part of the process. This is how students learn life skills like problem solving, self-direction, and collaboration. Completing multiple projects during their schooling allows students to learn and practice these life skills.

The process of solving problems in the process of completing a project is more complex than memorizing information because it requires students to communicate by explaining how one idea would work better than another. It also requires multiple episodes of thinking and doing. Thinking through a problem is critical, but so is the doing phase. The doing phase is often where unexpected problems crop up which require students to generate new ideas. It's one thing to create a blueprint to

build a wood duck box, which is similar to problem-based learning, but quite another to actually build it and attach it to a tree where ducks might use it, which is project-based learning (http://edvisions.org).

Schools in the study

The 11 EdVisions Schools in this study included Avalon, Escuela Verde, Minnesota New Country School, Northern Lights Community School, Northwest Passages, Sage Academy, Valley New School, Career Pathways, Dream Technical Academy, EdVisions Off Campus, and Jane Goodall Environmental Sciences Academy. Most of these schools have been in existence for over 15 years. Nine are Minnesota charter schools, and two are Wisconsin charter schools, half of which served 6th- to 12th-grade populations and the other half 9th to 12th. Eight participated in this study for 2 years and three for 1 year.

The Minnesota Education Department and the Wisconsin Department of Public Instruction websites were used to compare demographic information. The number of White to non-White populations were virtually the same: 71 percent in the EdVisions Schools, 69 percent in Minnesota, and 70 percent in Wisconsin (Minnesota Department of Education, n.d.; Wisconsin Department of Instruction, n.d.). The schools in the study averaged a few more students who qualified for free/reduced lunch (38% to 37%), and by far more students who qualified for special education (36% to 16%) than the State of Minnesota. Thus, these charter schools are being asked to perform as well or better than their non-charter counterparts with a much more demanding population.

Methodology

There were five variables in this study: the hope survey, a self-direction rubric, a collaboration rubric, math RIT scores, and reading RIT scores. Scores for the eight schools that participated in the study for 2 years were collected on each of these variables for the 2017–2018 school year, and the 2018–2019 school year to determine growth over time. The scores used to calculate growth were collected in the fall of 2017 and the spring of 2019.

Three more schools were added to the study in the fall of 2018 totaling 11 schools. A correlational study was conducted for all 11 schools for the 2018 school year. This study compared two variables at a time in attempts to determine relationship strengths. For example, hope and math, hope and reading, hope and self-direction, hope and collaboration, and so on. Posttest scores (Spring 2019) for the five variables were used to determine Pearson R correlation coefficients and p values (significance).

The Microsoft Excel program was used to input all data, and to determine the Pearson R correlation coefficients, as well as the p values. The relationship between the variables is considered non-existent or extremely weak with coefficients between $-.1$ and $.1$. They are considered weak between $.1$ and $.3$, moderate between $.3$ and $.5$, and strong between $.5$ and 1.0. Significance can also be determined by lower coefficients if the numbers of participants is greater. The p values were calculated to determine if any of the correlations were statistically significant.

This research was conducted under the auspices of EdVisions and in order to participate in this study, schools were required to sign a Memorandum of Understanding. By signing the documents, the schools understood and agreed to provide the assessment director of EdVisions with these scores. For privacy purposes, student and teacher names were omitted in this study.

MAP tests (RIT scores)

Measures of Academic Progress (MAP) tests are a way for schools to measure student achievement in math and reading, and are aligned with the Minnesota State Standards. MAP scores are reported

using the Rasch Unit (RIT) with scores ranging from 100 to 350. Although these tests are not required by the state of Minnesota, many schools administer them, perhaps because they are a more accurate measurement of student growth over time.

MAP tests are not standardized and do not use the same set of questions for all students within a specific grade level. For example, if a 10th-grade student were to answer a math question incorrectly, the test adjusts itself to provide the student with easier questions. Likewise, if the student answers a question correctly, the test adjusts by asking harder questions. This gives teachers a better understanding of where a student is at academically at a given point in time and allows them to adapt their teaching to meet individual student's needs. In this study, we collected the RIT scores for students at the eight schools in math and reading.

Hope survey

The hope survey is designed to give schools a comprehensive tool to assess the school climate and culture from the students' viewpoint. It can pinpoint strengths as well as areas needing improvement. The results from the hope survey inform staff and administrators with quantitative data to help design proactive plans to improve school practices and procedures in order to enhance and enrich the school climate, culture, and the student experience. This tool can be implemented and managed for school-wide improvement in a way that directly benefits the students. The survey itself is easy to use and the data collected informs practical strategies to help students build a positive disposition (i.e. hope).

It has been utilized by positive psychologists to measure how therapies enhance goal setting and positive future thinking. In the case of our survey, hope was used as a construct reflecting a person's perception of himself or herself as a success, a problem-solver, and an achiever.

The series of student self-perception surveys in the comprehensive hope survey were constructed to assess a school environment using the developmental perspective. The other surveys in the series measure school-related perceptions. They measure the degree to which the school context supports the students' developmental needs for autonomy, belongingness, and a positive goal orientation. In addition, we measured student behavioral and emotional engagement in learning and their psychological adjustment, or 'hope'. In a psychologically healthy environment, student perceptions of the learning environment (as measured by autonomy, belongingness, and goal orientation) should be higher, and students should respond with higher levels of engagement, and, over time, growth in hope.

By increasing student engagement and hope, schools can realize benefits in terms of student behavior, attendance, and academic achievement. Students gain an increased confidence in themselves as achievers that can benefit them throughout their life span. Students with higher hope scores tend to set more challenging goals, believe they can achieve their goals, and have a higher chance of graduating from college.

In an earlier study using the hope survey, Newell and Van Ryzin (2009) found a correlation between engagement and hope, and that all other variables (goal orientation, autonomy, and belongingness) have correlations to engagement (pp. 46–48). They conclude, schools that utilize the hope survey know that to raise engagement, allowing for more voice and choice for students (especially as they grow older) creates a perception of autonomy, and consequently, student engagement may be raised. As engagement rises, a correlative rise in hope was observed.

The hope survey is the only comprehensive tool that addresses the constructs of engagement, goal orientation, autonomy, and belongingness with focused strategies to help educators effectively apply the data (EdVisions. (n.d.-b), https://www.hopesurvey.org/). Hope scores were collected for all students at the beginning and end of the 2017–2018 and 2018–2019 school years.

N	Variables	Score F 2017	Score S 2019	Change	Significance
327	Hope Survey	47.95	49.21	+1.26	p<0.01
247	Math RIT	228.85	233.94	+5.09	p<0.01
233	Reading RIT	223.65	228.48	+4.83	p<0.01
266	Self-Direction	3.52	5.12	+1.60	p<0.01
266	Collaboration	3.76	5.26	+1.50	p<0.01

Figure 1. Growth in all five variables.

Life skills rubric

The Qualtrics software program was used to create a life skills rubric on self-direction and collaboration. Teachers filled out the rubric on each student in their advisory in order to compare growth from the beginning of the Fall 2017 school year to the end of the school year (Spring 2018 and 2019). The same Qualtrics survey was used for both the pretest (beginning of school year) and the posttest (end of the school year), so each teacher filled it out twice for each student in 2018 and 2019. If students were assessed for a second year (2019), they were assessed from Fall 2017 to Spring 2019.

This rubric was designed after having multiple discussions with school teachers and the EdVisions Comprehensive Assessment Plan committee. The self-direction portion of the rubric consisted of six qualifiers including goal setting, use of resources, self-management, internal motivation, self-evaluation, and adaptability. The collaboration portion of the rubric consisted of five qualifiers including communication skills, social skills, interaction with peers and adults, presentation skills, and leader and organizer. Prompts were provided under the qualifiers on the Qualtrics rubric to help teachers determine the student's level of skill for each qualifier. Students were ranked according to eight skill levels for each qualifier. Level 1 was the lowest and was identified as 'little awareness'. Level 2 was identified as 'aware of and attempts some items'. Level 3 was 'demonstrates some items with prodding'. Level 4 was 'demonstrates many items inconsistently with prodding'. Level 5 was 'demonstrates many items with encouragement'. Level 6 was 'demonstrates most items with support'. Level 7 was 'demonstrates items consistently with little support', and the highest level (eight) was 'self-directed, can function autonomously'. Students were ranked 1 through 8 for each qualifier. The life skills rubric can be found in Appendix 1.

Findings

This study was conducted to determine changes in scores for a 2-year time period from the beginning of the school year of Fall 2017 to the end of the school year of Spring 2019 (Figure 1), and to determine correlational values between two variables at a time (Figure 2).

Figure 1 shows growth in all five variables from the fall of 2017 to the spring of 2019 for the eight schools that participated in the 2-year study. All five changes in scores were statistically significant.

The researchers then extracted data for the correlation coefficient between two variables at a time to determine *r* values for all 11 schools for the 2018–2019 school year. Figure 2 shows that the *r* values for all correlations except hope and reading were statistically significant. There were 358 students who completed the math tests and hope surveys, with a correlation of .14, a significant correlation. Although the correlation of hope and reading, with an *N* of 340, was not significant

Variables		r value	Significance	Participants
Hope	Math	0.14	p<0.01 Significant	N=358
Hope	Reading	0.07	Not Significant	N=340
Hope	Self Direction	0.28	p<0.01 Significant	N=428
Hope	Collaboration	0.27	p<0.01 Significant	N=428
Math	Reading	0.68	p<0.01 Significant	N=481
Math	Self Direction	0.35	p<0.01 Significant	N=234
Math	Collaboration	0.35	p<0.01 Significant	N=234
Reading	Self Direction	0.39	p<0.01 Significant	N=227
Reading	Collaboration	0.36	p<0.01 Significant	N=226
Self Direction	Collaboration	0.90	p<0.01 Significant	N=582

Figure 2. Correlations and significance for all variables.

with a correlation of .07, the researchers found that all other combinations of variables were significant at <.01!

As can be seen, there were significant correlations among all variables except reading and hope, where a small correlation existed. Hope, the social-emotional aspect of a person's disposition toward being successful, was significantly correlated to all other variables. Also, all other variables were significantly correlated to the two life skills assessed: self-direction and collaboration. Interestingly, the life skills were also significantly correlated to both math and reading.

Discussion

The data indicate positive growth in all areas from the beginning of the study in 2017 to end of the school year 2019, for the eight schools that participated in the study for 2 years. The growth in hope was statistically significant, and represents a strong 2-year gain. The growth in math was also strong, as the researchers assumed it to be the most difficult subject to teach in a project-based environment. Reading scores rose at a lesser rate, as reading scores were higher in relation to math, but there was still growth. The reading scores were better than the national norms. When considering the fact that nearly 40 percent of the student body in these 11 schools had Individualized Education Programs (IEPs), the reading scores and the math growth are beyond expectations!

Self-direction rose 1.60 points, and collaboration rose 1.50 points in the 2 years. These scores include both younger and older students. This represents both spectrums of scores, the younger students who are still closer to a 1 on the scale and the older students on the other end of the spectrum closer to an eight. Although the gain was just over 1 point in 1 year, the longer a student stays in a project-based learning school, and the higher one goes on the rubric, the more difficult it would be to have growth gains due to the ceiling effect. The fact that the average score in 2019 was 5.12 on self-direction, and 5.26 in collaboration, assumes that long-term students do very well developing life skills.

Hope for over 600 students increased 1.69 points on the hope scale, from just below average to well above average. Hope increased more the first year because the baseline score is the students' perception of their previous school experience. The first year gain is usually the largest,

when students begin to see that school is no longer 'school as usual', and they see a school that emphasizes autonomy, mastery goal orientation, and support for individual efforts. After that, hope does not rise at the same rate as the first year. Thus, a gain of over 1 point the first year, and .5 the second, is a normal pattern.

The math RIT scores rose 5.09 points in 2 years. This is a nice increase in scores when considering that there are high school students mixed in with middle school students. When considering that 36 percent of students are on IEPs, and that the average score in Spring 2019 was creeping closer to the national norm, we can see that the staff and students of these schools are doing a wonderful job. And due to the fact that math and hope are correlated, we can make a judgment that raising hope via project-based learning benefits students in other ways other than just life skills.

The reading RIT increased 4.83 points, showing an exponential growth curve from the beginning score for most students (growth the first year was +2.01). The final average (228.48) is also above the national norm, and above many traditional schools, showing that project-based learning is certainly not a detriment to basic skills growth! Reading becomes an essential skill for doing long-term projects and presentations of learning, and dove-tails into self-direction. Reading, an essential skill for lifelong learning, is certainly enhanced by those involved in project-based learning!

In addition, there were correlations between all pairs of variables, albeit one was weak. There was also a relationship between each combination of variables that was statistically significant except for hope and reading. There was a significant correlation of hope to other measurements. This is encouraging to those who realize that the social-emotional aspects of learning is important. And the fact that high hope is a precursor to success means that it is worthy of being utilized as a measurement, as the hope data can be used to create the proper culture for student success in life skills, and basic skills such as math and reading.

But hope is not just a corollary to learning – it is a core outcome – and paying attention to growth in hope will benefit students in many more ways. The fact that schools can raise hope, especially when many students are coming to EdVisions' project-based schools with lower than average hope, is gratifying; yet it is daunting, as well. Schools have to do more for students than ever. Yet, raising hope for the future ought to be a goal, a mission. Teachers must pay attention to the needs of children who have little hope.

Life skills are similar in that they help students develop confidence to do well, not only with their academic skills, but in all other areas of their lives. Admittedly, the findings for life skills are based upon opinion of the teachers, and as such may not have high inter-rater reliability. But as each of the teachers have utilized similar rubrics for many years, their judgments gave a strong picture of what is happening to students over time in their schools.

Wurdinger and Rudolph (2009) conducted a study with EdVisions alumni and found that they ranked themselves extremely high (80–90 percentile) with their life skills, but much lower (40–50 percentile) in their academic skills. Yet, 50 percent of these alumni completed a 4-year college degree, whereas the National average is only 33 percent. Strong life skills allow students to navigate their way through a 4-year college degree. It is critically important for schools to promote and help students develop life skills that they can carry with them the rest of their lives.

These charter schools are finding ways of delivering not only growth in test scores, and meeting standards with demanding populations, but are developing lifelong learners with the proper dispositions to be successful at the next level. Developing individualized methods while meeting state standards, and finding resources to do so, places a great deal of stress on schools assessing academic achievement, social-emotional growth, and life skill development. But by using individualized, project-based learning, they are able to rise to the challenge.

Project-based learning allows students to think creatively; solve problems; learn important life skills, such as self-direction and collaboration; and work with their hands creating meaningful

projects. This process of learning promotes creative thinkers and motivates students to learn. It is effective at raising hope scores, life skills, as well as test scores, and educators all across the world should consider utilizing it in their schools.

References

Barron, B., Schwartz, D., Vye, N., Moore, A., Petrosino, A., Zech, L., & Bransford, J. (1998). Doing with understanding: Lessons from research on problem and project-based learning. *The Journal of the Learning Sciences*, *7*(3), 271–311.

Bender, W. (2012). *Project-based learning: Differentiating instruction for the 21st century*. Corwin.

Blumenfeld, P., Soloway, E., Marx, R., Krajcik, J., Guzdial, M., & Palincsar, A. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. *Educationalist Psychologist*, *26*(3&4), 369–398.

EdVisions. (n.d.-b). https://www.hopesurvey.org/

Grant, M., & Branch, R. (2005). Project based learning in a middle school: Tracing abilities through the artifacts of learning. *Journal of Research on Technology in Education*, *38*(1), 65–98.

Krauss, J., & Boss, S. (2013). *Thinking through project-based learning: Guiding deeper inquiry*. Corwin.

Larmer, J., Mergendoller, J., & Boss, S. (2015). *Setting the standard for project based learning*. Association for Supervision and Curriculum Development.

Levine, E. (2002). *One kid at a time: Big lessons from a small school*. Teachers College Press.

Littky, D., & Grabelle, S. (2004). *The big picture: Education is everyone's business*. Association for Supervision and Curriculum Development.

Meyer, K., & Wurdinger, S. (2016). Students' perceptions of life skill development in project based learning schools. *Journal of Educational Issues*, *2*(1), 94–114.

National Association of Colleges and Employers. (2016). *Job outlook 2016: The attributes employers want to see on new college graduates' resumes*. https://www.naceweb.org/career-development/trends-and-predictions/job-outlook-2016-attributes-employers-want-to-see-on-new-college-graduates-resumes/.

Newell, R. (2003). *Passion for learning: How project based learning meets the needs of 21st-century students*. The Scarecrow Press.

Newell, R., & Van Ryzin, M. (2007). Growing hope as a determinate of school success. *Phi Delta Kappan*, *88*(6), 465–471.

Newell, R., & Van Ryzin, M. (2009). *Assessing what really matters in schools: Creating hope for the future*. Rowman & Littlefield.

Pearlman, B. (2009). *New skills for a new century: Students thrive on cooperation and problem solving*. http://www.edutopia.org/new-skills-new-century.

SCANS. (1992). *Report*. U.S. Department of Labor. https://wdr.doleta.gov/SCANS/whatwork/.

Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. John Wiley & Sons.

Wagner, T. (2008). *The global achievement gap*. Basic Books.

Wisconsin Department of Instruction. (n.d.). https://dpi.wi.gov.

Wurdinger, S. (2016). *The power of project based learning: Helping students develop important life skills*. Rowman & Littlefield.

Wurdinger, S., & Rudolph, J. L. (2009). A different type of success: Teaching important life skills through project based learning. *Improving Schools*, *12*(2), 117–131.

Appendix I

Self-Directed Learner Student Number:___	1 Little Awareness	2 Aware of and Attempts Some Items	3 Demonstrates Some Items With Prodding	4 Demonstrates Many Items Inconsistently with Prodding	5 Demonstrates Many Items with Encouragement	6 Demonstrates Most Items with Some Support	7 Demonstrates Items Consistently with Little Support	8 Self-directed, can Function Autonomously
Goal Setting								
• Develops large and smaller goals for projects								
• Develops specific and appropriate objectives								
• Sets high standards of quality for self								
• Organizes time and works well								
• Develops career planning and participation								
• Develops long-term projects, culminating with senior project								
Use of Resources								
• Uses a Variety of resources								
• Assesses information for validity								
• Generates original ideas								
• Synthesizes information and expresses own ideas and opinions								
Self-Management								
• Recognizes strengths and weakness								
• Demonstrates interest in knowing more about self								
• Can evaluate use of time in relation to credits, projects, presentations								
• Sets high standards for self								
• Takes ownership for own behavior and takes responsibility for the community								

(Continued)

Appendix 1. (Continued)

Self-Directed Learner Student Number _____	1 Little Awareness	2 Aware of and Attempts Some Items	3 Demonstrates Some Items With Prodding	4 Demonstrates Many Items Inconsistently with Prodding	5 Demonstrates Many Items with Encouragement	6 Demonstrates Most Items with Some Support	7 Demonstrates Items Consistently with Little Support	8 Self-directed, can Function Autonomously

Internal Motivation
- Develops career planning and participation
- Identifies problems, makes own assumptions
- Has internal locus of control
- Can generate specific tasks for project and standard completion
- Perseveres in the face of difficulties
- Develops a passion for learning

Self-Evaluation
- Assesses own work very well
- Journals with perception and understanding
- Reflection goes beyond questions asked

Develops own criteria for personal and product evaluation

Adaptability
- Has sufficient learning skills to adapt projects from original design
- Has shown creativity and problem solving when beset with problems
- Can take initiative and find creative solutions

(Continued)

Appendix I. (Continued)

Collaboration/Interaction	1 Little Awareness	2 Some Awareness	3 Demonstrates Some With Prodding	4 Demonstrates Many Inconsistently with Prodding	5 Demonstrates with Support and Encouragement	6 Demonstrates on Most Items, needs Some Support	7 Consistent on All Items, Needs Little Support	8 Self-directed, can Function Autonomously

Communication skills
- Uses writing to communicate ideas, opinions, and perceptions
- Uses oral communication to communicate ideas, opinions, and perceptions
- Listens actively to other ideas
- Uses the opportunity to contribute in circles, assembly meetings, and in one-on-one with advisor
- Continues to improve reading, writing, and presentation skills

Social skills
- Effectively responds to other's feelings and perceptions
- Accepts other's behavior and lifestyles
- Relates effectively within group discussions
- Demonstrates understanding and tolerance of others
- Stands up for others
- Handles confidential information wisely

(Continued)

Appendix 1. (Continued)

Collaboration/Interaction	1 Little Awareness	2 Some Awareness	3 Demonstrates Some With Prodding	4 Demonstrates Many Inconsistently with Prodding	5 Demonstrates with Support and Encouragement	6 Demonstrates on Most Items, needs Some Support	7 Consistent on All Items, Needs Little Support	8 Self-directed, can Function Autonomously
Interaction with peers and adults								
• Interacts meaningfully with advisor								
• Interacts meaningfully with peers								
• Appreciates school, takes responsibility for work space, advisory, school in general								
• Represents self and the school well when interacting with those outside of school								
• Is helpful and caring when asked to work with others								
• Demonstrates respect and is an open-minded, active listener								
Presentation skills								
• Introduces self with poise								
• Identifies significance of project								
• Acknowledges resources								
• Makes eye contact, speaks to audience								
• Speech is relaxed and conversational								
• Speech is loud enough for everyone to hear								
• Uses standard English, avoiding slang, etc.								
Leader and organizer								
• Consistently leads others and gets results								
• Comprehends group roles and responsibilities								
• Develops synergy rather than hinders results								
• Can share a vision and follow through								
• Effectively prioritizes and delegates								