

AN ETHNOGRAPHIC INQUIRY AND EVALUATION INTO THE STUDENT'S
PERSPECTIVE AND EXPERIENCE WITH IMPROVEMENT
SCIENCE AT ALGOMA SCHOOL DISTRICT

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Using ethnographic research in the form of an outcomes assessment, this project aims to unpack and evaluate the experiences of students and significance of the key concepts shared during the Live Algoma-Improvement Science course/and associated projects during the 2015-2016 and 2016-2017 school years. Through the use of evaluative techniques such as interviews, focus groups, and a survey, I endeavor to both strengthen and inform the work Live Algoma is doing and highlight to the community and other stakeholders the valuable impact of this initiative on the students. As part of the Improvement Science course, students from the Algoma School District were trained on key concepts such as failing forward, PDSA, and ways of being to empower them to better handle individual project management, life challenges, and goal setting. While this project was expansive in overall scope, this outcome evaluation sought to understand the retention and internalization by program participants of key concepts imparted from the Improvement Science course and related projects. The findings provide strategic and targeted insights into the success of the course and opportunities for refinements in future Improvement Science courses and school and community projects with Live Algoma and the Algoma School District.

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TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS.....	iii
LIST OF TABLES AND FIGURES.....	vi
CHAPTER 1. INTRODUCTION.....	1
1.1 Client Background	1
1.2 Researcher Background	3
1.3 Discussion of Issue.....	5
1.4 Description of Improvement Science Course and Related Programs	6
1.5 Justification	8
1.6 Study Purpose	9
1.7 Deliverables	12
1.8 Limitations.....	12
CHAPTER 2. CONTEXT OF WORK.....	13
2.1 Conceptual Frameworks	13
2.2 Youth Participatory Action Research	13
2.3 Postmodernism.....	17
2.4 Critical Theory, Critical Consciousness, and Critical Pedagogy.....	18
2.5 Bourdieu, Habitus and Place-Conscious Research	18
2.6 Educational Pedagogies: Status quo vs. Innovation	20
2.7 Adolescent Identity, Attitudes and Motivation	22
CHAPTER 3. METHODS	24
3.1 Design Overview.....	24
3.2 Timeline	24
3.3 Participant Recruitment.....	26
3.4 Demographics.....	26
3.5 Data Collection	27
3.5.1 Semi-Structured Interviews	27
3.5.2 Focus Groups.....	28
3.5.3 Qualtrics Survey.....	28

3.5.4	Observations	29
3.5.5	Review of Documents	29
3.6	Data Analysis	30
3.7	Ethical Clearance	30
CHAPTER 4.	FINDINGS	32
4.1	Findings Overview	32
4.2	Strategic Tools	33
4.3	Response to Challenges	36
4.4	Ways of Being/Self-Efficacy	39
4.5	Leadership/Teamwork	43
4.6	Strengths of Program	45
4.7	Challenges	46
CHAPTER 5.	DISCUSSION	48
5.1	Key Findings in Perspective	48
5.2	Deliverables to Client	51
5.3	Recommendations	52
CHAPTER 6.	REFLECTION	54
APPENDIX A.	IMPROVEMENT SCIENCE SURVEY	56
APPENDIX B.	INTERVIEW GUIDE	62
APPENDIX C.	FOCUS GROUP PROTOCOL	66
APPENDIX D.	CLIENT REPORT	68
APPENDIX E.	CLIENT REPORT-HIGHLIGHTS	80
REFERENCES.	85

LIST OF TABLES AND FIGURES

	Page
Tables	
Table 1. 2016-2017 Schedule of Project Activities	25
Table 2. Student Participants	26
Table 3. Response to Challenges	38
Table 4 .Ways of Being	42
Table 5. Self-Efficacy	42
Table 6. Leadership/Teamwork.....	44
Figures	
Figure 1. Wisconsin and Kewaunee County.....	2
Figure 2. Live Algoma model (http://livealgoma.org/about/).	2
Figure 3. Examples of student projects.	8
Figure 4. Downtown Algoma and Algoma Middle/High School campus.	9
Figure 5. Logic model used during planning and implementation of research project	11
Figure 6. Conceptual framework for major themes.	31
Figure 7. Strategic tools: key words and concepts.	32
Figure 8. PDSA graphic designed by Algoma high school student.	34
Figure 9. Response to challenges: key words and concepts.....	37
Figure 10. Student book box.	40
Figure 11. Students teaching Hands only CPR (Source: http://livealgoma.org).	41
Figure 12. Leadership/teamwork: key words and concepts.....	43

CHAPTER 1

INTRODUCTION

1.1 Client Background

Algoma (Figure 1) is a small, rural town nestled on the shores of Lake Michigan. Quaint, charming, and welcoming to tourists, it has struggled increasingly with poor health outcomes and low community vitality. In an effort to improve the quality of life and health for their residents, a community wellness center was added in 2015 to the high school which later developed into the formation of a community-based organization: Live Algoma. Live Algoma is a grassroots local platform where members can collectively be involved to improve the overall health and wellness of their community. The organization is also mentored by a well-established healthcare organization in the region and subsequently became involved with the Institute for Healthcare Improvement (IHI). Its physical placement within the school and the school district along with a focus upon healthy children as one of its five priority areas (Figure 2) has fostered the development of a strong community-school partnership based on a unique model. With the resources of Live Algoma easily accessible to the school, it became inevitable that ultimately the two would join forces to help the students. The Harvard University Improvement Science course and program was one of the first partnerships between these two groups and has showed promising signs of making a change in their students and community.

The varied and diverse relationships and connections, which Live Algoma has cultivated, provide rich opportunities for the community to receive training and support to help improve health and wellbeing. Results are encouraging – Algoma was selected

as one of 20 communities in the nation to participate in Spreading Community Accelerators through Learning and Evaluation (SCALE), a program through IHI and the Robert Wood Johnson Foundation, designed to help communities improve health and wellbeing for its members. More recently, Algoma was one of eight communities to receive the prestigious 2017 Robert Wood Johnson Foundation Culture of Health Prize.



Figure 1. Wisconsin and Kewaunee County. (<https://en.wikipedia.org> and https://www4.uwm.edu/Org/studywi/Wisconsin_Location.html).

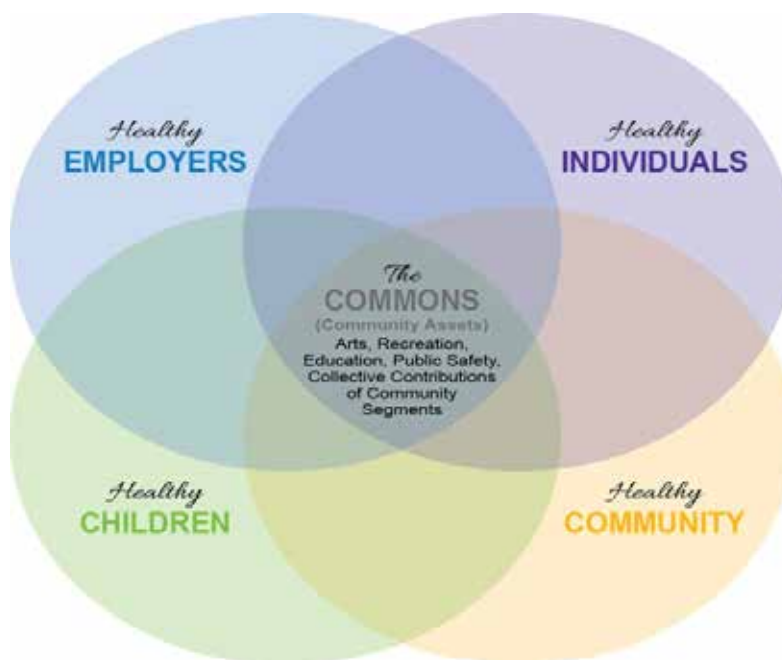


Figure 2. Live Algoma model (<http://livealgoma.org/about/>).

Algoma has approximately 3,000 residents with a school district that includes just over 700 students in Grades K-12. In the 2015-16 academic year, students from Algoma High School participated in the Improvement Science course and accompanying programs. Initial responses from the students at Algoma High School indicated that the Improvement Science course had a profound and positive impact on their lives. Additional groups of students were also subsequently taught the methods and ideas central to Improvement Science and participated in several school and community projects.

1.2 Researcher Background

Like all research projects, there is a point of conception when the stars align and a path begins to unfold. During a luncheon last year, I met with some students from Algoma who shared their enthusiasm for a new class and project they were involved in. Their excitement was palpable and infectious. I could sense there was something unique about this program and asked for their teacher's contact information. Shortly thereafter I met with Teal, the director of Live Algoma, and was fascinated by her description of the work they were doing with their students and community. I wanted to learn more about this innovative approach, that from initial observations was positively shifting perspectives and momentum for rural youth. Subsequent discussions led to the collaborative design of this research project to unpack and evaluate the students' perspective of the Improvement Science course and programs.

While I am not a local resident of Algoma, I currently live and work in a rural community similar to Algoma. Herr and Anderson ask an important question, "Who am I

in relation to my participants and my setting?” (2015, 37). This is my attempt to answer that question and allow the reader to understand the positionality from which this paper originates. While I am indeed a researcher, I wear many other hats. I am a teacher, a community volunteer, a wife and a mother. I was raised in the city suburbs of the Mountain West and now live in the rural Midwest. Though my training to become a teacher had familiarized me with various marginalized student populations in education, my white, middle class privilege functioned as a barrier, distancing me from grasping the severity of many of these situations. It’s important to note here that I have four children – all of whom are or were enrolled in public schools in Wisconsin. During the last decade I have been intimately involved with the school system in my small rural community as a parent, a volunteer, and as a substitute teacher. Over time I became more aware of many of the challenges and assets that rural schools hold. I began to have numerous conversations with friends and community members, joined a committee for culturally responsible practices, served as a regional youth group leader for adolescent girls, and began a graduate degree in applied anthropology.

My role is complex in this project– I am both an insider and an outsider, activist and researcher, teacher and parent. Hastrop et al. reference the notion of “betweenness” (1990, 302). I find this to be an apt description of where I find myself in the relation to my client and research participants. This complexity has allowed me to move more freely between different perspectives to help gather information in a holistic and inclusive manner and develop a robust and generous approach to this research project.

1.3 Discussion of Issue

When the vice president of a large health care organization first stood and spoke at a Live Algoma student book group, he told the students that they were going to change the world together. Students were puzzled and looked on in disbelief. Many thought he was unrealistic; still they were intrigued. They hadn't even considered such a possibility before.

As I spoke with teachers and administrators from Live Algoma and the Algoma School District, there were several key concerns and issues that led to the development and introduction of the Improvement Science course and related programs. Algoma is a small community with little racial or ethnic diversity. Many people have lived in the community for generations, which has led to the development of predictable and known frameworks. As there is little mobility or change within the town, these ideas are rarely challenged. If they are challenged, one could face being marginalized, thus reinforcing the scripted set of beliefs. In my interviews, many of the teachers and staff referred to this mentality as "living within the box." With little outside influence, this limited yet stable approach created difficulties for students when facing obstacles and developing a deep belief in their potential. Teachers and leaders described these limiting beliefs with terms like "fear of risk," "a 100 foot wall" and an aversion to conflict. An outside research firm, the Karma Group, also described similar findings in their report, which evaluated the community and found that a "dream deficit" was commonly displayed among community members.

Algoma School District faces many challenges similar to small rural schools across the country including high rates of student poverty (nearly 40% of students are

on free/reduced lunch), budget restraints, and limited staff and resources. These challenges also impact educational outcomes. Algoma scores lower than many of the larger, resource abundant suburban school districts in the state. For example, last year 39.8% of Algoma’s students were proficient on the state Forward Exam contrasted with 68.9% proficient in the nearby suburban De Pere School District (WISEdash 2017).

In the face of these diverse issues, teachers and administrators desired to help students learn to think critically, with innovation and creativity. They also hoped to create opportunities where students could apply those skills in meaningful ways to improve their lives and community. While the Algoma School District is arguably limited in many areas, teachers and administrators used available assets and worked diligently to develop a resourceful approach to help their students in a meaningful and locally situated way through the implementation of the Improvement Science course and related programs.

1.4 Description of Improvement Science Course and Related Programs

This paper refers to the Improvement Science course developed by Harvard University and the Institute for Healthcare Improvement. While this course is typically used for health care professionals, teachers and staff at Algoma High School felt this course would be useful to their students and received permission to bring it to their school. The Harvardx¹ course is described as “a practical, rigorous methodology that includes a theory of change, measurable aims, and iterative, incremental small tests of

¹ Harvardx” refers to online courses offered by Harvard University. In this paper it is used to refer to the specific course “Practical Improvement Science in Health Care: A Roadmap for Getting Results.”

change to determine if improvement concepts can be implemented effectively in practice” (edX 2017). The course served as a cornerstone upon which further skills and concepts were taught and developed. The PDSA (Plan, Do, Study, Act) cycle is a foundational piece that helps operationalize many of the concepts. Teachers and leaders incorporated key concepts learned at conferences and other training events from IHI and adapted them to the school environment so that students could understand and apply these concepts to community and school related issues. As this was the first implementation of this course and related programming in the school district, there was no defined curriculum beyond the Harvardx course and materials developed organically and collectively from leaders within the school and community as well as from outside stakeholders (such as IHI).

In addition to the Improvement Science course and applied learning projects, teachers and leaders implemented additional activities and programs such as a book group, where students read *Social Change 2.0: A Blueprint for Reinventing our World* by David Gershon (2009) and designed their own blueprint for change in their community. Additionally these concepts were introduced and taught to another group of high school students who formed a Hands-only CPR team in the community. Enthusiasm for the Improvement Science course and related programs grew among the high school students as well as concern for the sustainability of their efforts. This led to a mentoring program where high school students were paired with middle school students to use the PDSA process and related concepts to address needs within the school and community. Students addressed issues ranging from healthy snacks, animal rights, access to books and sexism (Figure 3). For the sake of simplicity, this paper

uses the terms Improvement Science and related programs/projects to include the wide range of projects and concepts from which students learned and participated.



Figure 3. Examples of student projects.

1.5 Justification

The perspective of a student is one that is often overlooked and underutilized in assessing and evaluating learning experiences and programs. A quick look into any academic library will reveal the shortage of this type of research and yet the knowledge gained from these participants provides valuable first-person accounts and insights into systems and communities that might otherwise be unseen. An example of this gap can be seen in a noted book on successful transformation in schools which contains a chapter titled “Leadership at Every Level” (Muhammad and Hollie, 2012) yet it fails to include students as active participants, incorporating them only as recipients, in the transformational process. Moreover, rural towns and school districts tend to be the types of communities that lie just below the radar and outside of educational discourse (Figure 4). Of the 424 school districts in Wisconsin, 328 (77%) are categorized as “rural” or “town” districts (Kemp 2016).



Figure 4. Downtown Algoma and Algoma Middle/High School campus.

Anderson-Levitt observes that “research on social class, gender and rural-urban inequities is less abundant in the United States” (2016, 18). Small, largely homogeneous populations (according to US Census data Algoma is 95% White) associated with rural communities have led to the current state where much of the research is focused primarily on large city centers with more racial diversity often ignoring or minimizing the struggles and strengths found in rural communities and schools. Our current political scene is one example that points to the importance of increasing our knowledge about the lives and perspectives of those living in rural locations. This research brings the perspectives of rural students to light through their experiences within an innovative school program. As Ervin writes, “We should, with an appropriate blend of humility and confidence, apply our research skills to people’s needs” (2005, 144). This paper is my contribution to help give voice to the students who are frequently rendered silent (Cammarota 2016).

1.6 Study Purpose

Using ethnographic research in the form of an outcomes assessment, this project

aims to unpack and evaluate the experiences of students and significance of the key concepts shared during the Live Algoma-Improvement Science course/and associated projects during the 2015-2016 and 2016-2017 school years. Through the use of evaluative techniques such as interviews, focus groups, and a survey, I endeavor to both strengthen and inform the work Live Algoma is doing and highlight to the community and other stakeholders the valuable impact of this initiative on the students. As part of the Improvement Science course, students from the Algoma School District were trained on key concepts such as 'failing forward', 'PDSA', and 'ways of being' to empower them to better handle individual project management, life challenges, and goal setting. While this project was expansive in overall scope, this outcome evaluation sought to understand the retention and internalization by program participants of key concepts imparted from the Improvement Science course and related projects. The findings provide strategic and targeted insights into the success of the course and opportunities for refinements in future Improvement Science courses and school and community projects with Live Algoma and the Algoma School District.

Within the scope of the research project, several evaluation questions and sub-questions were developed at the onset of the project in collaboration with key stakeholders and Improvement Science program coordinators in order to understand the impact of key elements of the Improvement Science program initiative. Emerging from the dialogue with key stakeholders, the need to assess key concept retention, integration of key concepts into participant daily life, and ability of program participant to disseminate key concepts learned throughout the Improvement Science programs were identified as critical areas for investigation. As such, the outcome evaluation conducted

specifically for this report investigated the following evaluation question and accompanying three sub-questions:

1. To what extent are key concepts learned by students in the Improvement Science course and related projects being applied?
 - a. To what extent are key concepts learned by students in the Improvement Science course and related projects being applied in their personal lives?
 - b. To what extent are key concepts learned by students in the Improvement Science course and related projects being applied in the community?
 - c. What factors impacted the successful integration and/or application of key concepts? What factors prevented the successful integration and/or application of key concepts?

An additional goal of this project was to also identify areas that needed further development. The deliverables produced from this project will help Live Algoma to share significant knowledge that can assist other communities seeking to create similar learning experiences.

Lastly, the logic model (Figure 5) used to visualize the relationships between key concepts, elements, and actors targeted within this evaluation is presented below as:



Figure 5. Logic model used during planning and implementation of research project.

1.7 Deliverables

The culmination of this project provided partnership members of Live Algoma and Algoma School District with information that reports the trends, patterns and ways of understanding found among the students. These resources highlight the impact of the Improvement Science class and projects and identify areas of strength and areas needing further refinement within the program curriculum. Specific deliverables from this outcome evaluation include but are not limited to a formal written report delivered to key program stakeholders and clients (see Appendix D) and a formal face-to-face presentation to community stakeholders of the comprehensive Live Algoma Project.

1.8 Limitations

Given the age difference between the student participants and me, responses from interviews and focus groups may have been more positive in an effort to provide information they presumed I felt was desirable and in deference and respect to age. The survey was, in part, a means to triangulate the responses given during interviews and focus groups and help account for possible participant bias. Distance also presented a barrier. Algoma was a 90-minute drive, which meant that visits and interviews needed to be planned in advance, thus limiting more informal observations and interactions with staff and students. Additionally the busy nature of schools and student lives presented barriers to access and time for interviews, focus groups and survey participation. However, students, staff and I managed to find sufficient times to meet and navigate their complex and full lives.

CHAPTER 2

CONTEXT OF WORK

2.1 Conceptual Frameworks

A theory's purpose is to help answer the questions of who, what, why and how, oftentimes in relation to certain social phenomenon. Thus, certain theories and concepts of applied anthropology and education can serve as navigation tools to help guide the researcher through the research process, providing a clear vision and efficient use of resources for investigation. The following theoretical lenses and concepts guided this project: YPAR (as a theory and praxis), postmodernism, critical theory and habitus. In addition a trend in education of moving away from essentialist pedagogies was discussed as well as research on identity and motivation. In reviewing the literature, frameworks of understanding were built around the Improvement Science course and related projects and also student responses were used to bridge the research with the larger body of literature.

2.2 Youth Participatory Action Research

This study draws most heavily from the theoretical framework of participatory action research (PAR) with a specific emphasis on youth participatory action research (YPAR). This was a critical piece of my research as so many components of the Improvement Science course and related projects echoed similar practices and principles found in PAR/YPAR. This approach shifts the gaze from outside-in to a view from within the community. PAR is committed to "exposing and changing relations of power" (Evans et al., 2009, 96) and is "most often applied to those who have been

politically, economically, and culturally marginalized” (Schensul and Lecompte 2016, 334). PAR differs from some other forms of action research as it not only functions as a partnership in sharing knowledge, but also actually trains the community (i.e. students) in research methods (341). Participants who had once functioned as subjects of research are now included as co-researchers, empowering them to have tools to transform their lives themselves (Evans et al., 2009, 896).

Youth participatory action research (YPAR) draws from the same principles as PAR, but is adapted for youth. When using YPAR, adults function more as a “guide on the side” rather than a “sage on the stage.” YPAR is research “conducted by youth, within or outside of classrooms with the goal of informing and affecting school, community, and/or global problems and issues and contributes to the positive development of a variety of academic, social and civic skills in youth” (Rubin and Jones 2007, 363). Teachers or adults buffer obstacles and provide training, resources and contacts as needed (Herr and Anderson 2015, 29). This approach serves as an invaluable tool to help “move policy” and “transform practice” as they are inclusive of students in finding solutions specific to their communities.

Cammarota and Fine (2008) posit that YPAR is not only a theoretical model but is pedagogical in nature as well. Citing Freire (1993), they see praxis as a combination of critical reflection and action. They write,

Students study their social contexts through research and apply their knowledge to discover the contingent qualities of life. Thus, the important lesson obtained from engaging in this pedagogical praxis is that life, or more specifically the students’ experiences, are not transcendental or predetermined. Rather, praxis reveals how life experiences are malleable and subject to change, and the students possess the agency to produce changes. The praxis aspects of YPAR inspire profound education and development outcomes (6).

Praxis as theorized and practiced in the work by Kysa Nygreen and Jean Schensul helped frame this project. Nygreen's focus on issues such as social justice, education, and identity are similar to my own research and helped to develop this project. I had learned about YPAR in several of my classes, but Nygreen's work stood out as a demonstration of how to apply these principles. Her experiences and research provided a tangible example of what YPAR looks like as well as offering an honest discussion on some of the challenges and successes that can arise. Though this research project looks at the impact of Improvement Science (not YPAR specifically) on a group of students, there are similarities that helped guide me as a new researcher. Nygreen's work is instructive, reflective and transparent. It is literature that is useful and accessible to those inside and outside the academic world, which was fundamental in conceptualizing how this process unfolds in an educational setting and witnessing it as praxis. An additional key piece of literature for this research was Participatory Action Research Curriculum for Empowering Youth by ICR, a group organized by Jean Schensul. Comprised of six learning modules, it is to be used as a resource and a "flexible set of materials, instructions, methods and exercises that can be adopted and adapted for specific settings and specific uses" (2004, 1). This information discusses how to go through the process of using YPAR as well as foundational information regarding its usefulness. There is a growing body of literature on PAR and YPAR (see Stringer 2014, Herr and Anderson 2015, Schensul and Lecompte 2016).

PAR can be easily adapted for a variety of circumstances (i.e. using it with youth -YPAR). There are however some elements that remain consistent when using PAR. Schensul and LeCompte liken PAR to a spiral with four repetitive stages (similar to

PDSA). They are: observe, reflect, plan and act (2016, 334-5). Put slightly differently, Kysa Nygreen (2013, 6) identifies three integral parts:

1. Identify common social problems affecting their lives or communities (Observe and Reflect)
2. Design research for investigation (Plan)
3. Engage in collective action (Act)

PAR has a strong commitment to “improve the lives of those who have participated” (McTaggart 1991, 169). Frequently the illusion of participation is given in research (171) and McTaggart and others have offered insights into how to make PAR actually participant driven and shared. To get a more practical look into the process, Schensul and LeCompte (2016) discuss eight steps as part of the methodologies of PAR. The suggested methods are built to ensure group participation (349):

1. Individual identity exploration
2. Group/Teambuilding
3. Understanding the value of research
4. Introduction of research methods
5. Identifying a research/action model
6. Group data/action analysis
7. Representation of results
8. Group action decisions

It's important to note that the beginning stages of PAR place significance on identity exploration, which is a critical aspect to adolescent development (Hope et. al 2015, 83). “PAR closes the ‘gap’ between the “learned’ and ‘learner’ so that knowledge of common people accrues capital in ways that bring about greater recognition for them

and thus justice in their struggle for self-determination” (Cammarota 2016, 518). The methods and theories of YPAR are designed to prevent one narrative from taking precedence over another and thus “transform ourselves and our communities, and build hope for our children and the world they will inherit” (Guajardo 2008,19). Jean Schensul writes that “forms of PAR that are truly transformational must be personally, socially, and politically empowering...and must be consistent with experiential education, the co-construction of knowledge, learner self-direction, self reflection and successful political mobilization for change” (2016, 128).

2.3 Postmodernism

Though the very nature of postmodernism makes it difficult to come to a consensus in definition, there are several key points which are relevant to educational and action research. At its heart, postmodernism is a reflective process (Herr and Anderson, 2015, 3). Using postmodernism, I conducted the research process through a lens which views knowledge as situated, rather than universal, which often fails to account for cultural differences. Postmodernists deconstruct knowledge production, as seen through the work of Michel Foucault. Foucault explored systems of knowledge and power and suggests that analysis must not only focus on system wide strategies, but should be built from “the micropolitics of power at the local level” and “maintains that people should cultivate and enhance planning and decision making at the local level” (Stringer 2014, 48-49). Situating the context of Algoma and its impact on students helped not only in the participatory design of the research project but also created important frameworks relevant to Algoma that aided in the analysis process.

2.4 Critical Theory, Critical Consciousness, and Critical Pedagogy

Critical theory works from a “focus on structural barriers to achieving greater equity” (Schensul and LeCompte 2016, 343). It provides a foundation upon which action can be taken. For example, critical theorists seek to uncover the effects of educational systems and related power structures. Kysa Nygreen refers to Freire’s work on critical consciousness conceptualizing it as “the realization that structures of oppression are social constructs that are built-and potentially changed-through collective action” (2013,78). This can then lead to a sense of empowerment that gives the oppressed a sense that change and transformation are possible. Additionally, critical consciousness can be described as a way to help “participants uncover needs and strengths based on lived experience and reflection rather than dominant societal views” (Knowles et al. 2015, 256). Lastly, critical pedagogy influenced this research approach to youth as it is founded upon similar principles aforementioned and “encourages students to take risks, to be curious and to question” and resists the “drill and skill” approach most frequently used in schools (Koppelman 2017, 288).

2.5 Bourdieu, Habitus and Place-Conscious Research

Bourdieu played a critical role in shaping educational anthropology particularly through his notions of habitus and fields (1977). Habitus can be described as the dispositions, habits and skills an individual develops as a result of their life experiences. Reay (2004) describes habitus as a set of internal matrices where, “choices are bounded by the framework of opportunities and constraints the person finds himself/herself in, her external circumstances” and where “dispositions are inevitably

reflective of the social context in which they were acquired” (435). Often habitus is not even consciously perceived by individuals and seen as natural rather than culturally constructed beliefs. Bourdieu also conceived the notion of fields as distinct arenas, which make up the world be they institutions or social structures. He saw the relationship between habitus and fields as dynamic, “on one side...the field structures the habitus...on the other side...habitus contributes to constituting the field as a meaningful world, a world endowed with sense and with value, in which it is worth investing one's energy” (Bourdieu, in Wacquant 1989, 44). Moreover, habitus and fields have helped researchers think “about the relationship between the larger structural elements of society and the more subjective experience of social actors as they produce and reproduce the social order” (Shumar and Mir 2016, 450-451). In this research I use habitus and field as conceptual tools allowing me to see participants (students) “actively engaged in creating their social worlds” (Reay 2004, 439) while acknowledging the disruption this creates in the larger field of the school and community.

Bourdieu’s work is closely associated with many anthropologists who “view meaning making as culturally constructed and situated...” (Tobin and Henward 2016, 216). Furthermore, research from educational anthropology shows that “social groups (including families and school communities) organize and determine how communicative roles are taught and learned, and which knowledge is worth acquiring and which is not” (Baquedano-Lopez and Hernandez 2016, 199). Such scholarship sheds light on the importance of researching and contextualizing place. Education researcher David Gruenewald (2003) argues that “the point of becoming more conscious of places in education is to extend our notions of pedagogy and

accountability outward toward places. Thus extended, pedagogy becomes more relevant to the lived experience of students and teachers, and accountability is reconceptualized so that places matter to educators, students, and citizens in tangible ways” (620). Place-conscious research thus emerged as an important component in framing my approach to this research and conducting my analysis.

2.6 Educational Pedagogies: Status quo vs. Innovation

Complex problems require careful and multi faceted solutions and thought. The challenges in education can be overwhelming and disorienting when searching for answers and workable solutions, yet ineffective and outdated educational strategies and pedagogies persist widely in education.

Schools have historically had an essentialist approach to education. This philosophy asserts that knowledge comes from four disciplines: social studies, science, mathematics and English language and literature (Koppelman 2017, 280). From this perspective, students are seen as empty vessels into which knowledge is poured (280) and where the goal of teaching is to “motivate students to remember information provided in textbooks, lectures and media” (280). Or in other words, students are reduced to and limited as mere consumers, rather than active agents in the educational process. Essentialist approaches to education are predictable and uniform with little variation. There are numerous reasons why this approach is ineffective. Critics most commonly point out that essentialist curriculum often fails to include a diversity of perspectives, does not account for different rates of learning and reduces effective learning to the ability to memorize and recall information with little to no application

(281). David Labaree's (1997) seminal essay on the purposes of education identifies three commonly held purposes: prepare students as citizens, prepare students as workers, provide students with opportunities for upward mobility (Nygren, 10).

Successful new strategies and pedagogies have been developed to improve the learning process and outcomes including real-world application and experiential learning (Tapps et al. 2014), YPAR (Cammarota and Fine 2008), "Funds of Knowledge" (Gonzalez et al. 2016), social reconstructivist approaches (Koppelman 2017), multicultural education (Koppelman 2017), and Improvement Science. Educational researchers Muhammad and Hollie (2012) demonstrate this shift in education noting that, "teaching and learning are social practices involving questions about authority and application of knowledge" (20). Some may question whether these approaches are actually successful as the idea of success can be interpreted widely. Merriam Webster (2018) defines success as a "favorable or desired outcome." A common thread woven between these various approaches is an intentional emphasis on the student perspective and engagement with course content and instruction. By this standard, these approaches are indeed successful when this specific outcome is achieved.

These pedagogies also reflect a social justice stance where schools are sites for making systemic change. Richard Schull (2000) writes in the forward of Freire's *Pedagogy of the Oppressed*, "Education either functions as an instrument which is used to facilitate integration of the younger generation into the logic of the present system and bring about conformity or it becomes the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world."

2.7 Adolescent Identity, Attitudes and Motivation

Nygreen points out that the dominant narrative in education has largely been deficit oriented (50). My research in the rural Midwest continually demonstrated that it is possible to overcome challenges and make a difference in a student's life despite limited access to resources. Schools play a significant role in shaping a student's identity and conception of what their potential can be (e.g. Wortham and Reyes, 2016). While much of the current research identifies how schools fail in this area, this study stands out as an example of effective interventions that have had a positive impact in their students' lives. Education can mean many things to many people. For this study I found Koppelman's examination of the word "education" to be instructive in guiding me to one of its central purposes. Koppelman cites Partridge's (1983) explanation that the word educate "derives from the Latin word ducere, which means 'to lead'; educere means 'to lead out or bring forth'; education means 'to bring forth the potential of an individual'" (2017, 279). Many teachers enter the field of education with this express desire yet it is easily buried under the weight and expectations of high stakes testing and numerous student needs, which exceed the teacher's resources. Programs like Improvement Science allow teachers and students to reach greater potential and find fulfillment in the educational sphere.

Scholars now also recognize that attitudes affect learning. Koppelman cites Combs (1979) who argues, "People behave in terms of what they believe about themselves. Whether we feel adequate or inadequate greatly affects how we approach a task" (2017, 285). Kysa Nygreen (2013) points out that there is a long history within educational research looking at the identity formation that occurs within schools (e.g.

Bettie 2003; Davidson 1996; Demerath 2009). She goes on to say that schools are sites where students “develop a sense of what kind of people they are, where they belong in the world, what they are capable of and entitled to and what they can expect in the future” (9).

Lastly, Ryan and Deci (2000) postulate that there are three conditions that enhance intrinsic motivation and well-being: competence, autonomy and relatedness. “Perhaps no single phenomenon reflects the positive potential of human nature as much as intrinsic motivation, the inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn” (70). This research is relevant to my study in helping me understand the underlying principles that led to the success of the Improvement Science course and related programs. Ryan and Deci write that internally motivated people “have more interest, excitement, and confidence, which in turn is manifest both as enhanced performance, persistence, and creativity” (2000, 68). Students who participated in the Improvement Science course and programs demonstrated this consistently.

CHAPTER 3

METHODS

3.1 Design Overview

Beginning in December 2016, preliminary meetings were held with administrators and leaders from the Algoma School District and Live Algoma to better understand the background of the program and its desired objectives and program outcomes. This included but was not limited to assessing specific needs, operationalizing the key concepts imparted as part of the Improvement Science course and related projects taught within Algoma School District. Discussions also led to the determination of the preferred methods for conducting the interviews, focus groups, and distribution of the designed survey instrument. In addition, participant observation and a review of related course/program documents were included as part of the data collection process. Though initially this study was planned to be strictly qualitative in nature, it was later decided that a mixed methods approach would provide a greater depth and breadth of understanding by triangulating the data using different vantage points.

3.2 Timeline

The comprehensive project timeline including administration of interviews, surveys, focus groups, data analysis and final report development is included below as Table 1. This schedule details the entire project including the full scope of the project. It should be noted that several of the interviews conducted during Spring 2017 served to inform the development and target audience of the evaluation survey. In addition to interviews, I also stayed in regular contact with Program Director Teal Van Lanen and

Superintendent Nick Cochart through phone calls, email and text. These conversations ensured that the project met their needs and provided information that was useful for their organization. Students also shared their feedback on the project and helped me to further refine my research approach to reflect their perspectives. Their desire to be heard and understood was an important motivation to ensure they had the space and freedom to express themselves. This collaboration wove together knowledge from local and academic perspectives to create a project that was participatory and representative of Live Algoma’s values.

Table 1

2016-2017 Schedule of Project Activities

	Nov/Dec	Jan	Feb	Mar	Apr	May	Jun-Oct
Research Proposal, Design, and IRB	Approve proposal; Design initiated, verified and approved	Interview, Focus Group and Observation IRB approval received		Survey IRB			
Stage 1 -Data Collection			Begin Interviews				
Stage 2- Initial Analysis			Data Analysis	Data Analysis			
Stage 3 - Further Data Collection				Interviews, Focus Groups, Observations	Deploy Survey	Deploy Survey	
Stage 4 - Final Data Analysis and Draft Deliverables					Data Analysis	Data Analysis	Report Writing

3.3 Participant Recruitment

Participants were recruited through email and through letters sent home with classroom teachers. As many of the participants were minors, it was important that recruitment in the school followed existing channels of communication. This was done in the form of an information letter that was sent home to parents or guardians of the students (as identified by Live Algoma and the Algoma School District). Administrators from Live Algoma and the Algoma School District also provided contact information for teachers and former students who were involved with the Improvement Science course. These individuals were contacted through email. All participants had been or currently were involved with the Improvement Science course and related projects during the 2015-2016 and/or 2016-2017 academic school years.

3.4 Demographics

A total of 27 students participated in this research study (see Figure 1 below). The participants included 19 female students and 8 male students. All but one student reported that they were White/Caucasian with the other student reporting Hispanic ethnicity. Additionally, participants (77%) were primarily native to Algoma or had lived in Algoma for over 6 years.

Table 2

Student Participants

Year in School	# of Students
Graduates	9
High School Students	5
7th grade	9
6th grade	4

3.5 Data Collection

For the purpose of this evaluation, the decision was made to survey and/or interview students who had participated in the Improvement Science course and related projects at Algoma High School during the course of the 2015-2016 and/or 2016-2017 academic years to assess and evaluate the assimilation and retention of key concepts imparted throughout the Improvement Science course. As previously described, question development for the interviews, focus groups and survey was performed in collaboration with key stakeholders at Algoma High School and Improvement Science programming coordinators. Discussions and analysis of student work, community projects and informal observations were also highly instructive in creating the research protocols. Data was collected using quantitative and qualitative methods.

3.5.1 Semi-Structured Interviews

Sixteen semi-structured interviews were conducted, 6 with faculty members and 10 with students. Face-to-face interviews were conducted with faculty and current students while Skype and phone calls were used for students who had graduated and were either no longer in the area or were unable to meet in person. Interviews lasted between 30 and 90 minutes and were audio recorded and uploaded to my online database. ADA Transcription completed transcriptions.

To help develop a conceptual framework around the Improvement Science course and related projects, I began by conducting interviews with faculty members from the Algoma School District who were program leaders for the Improvement Science course and programs. These interviews provided further insights into key

concepts, expectations for students and school and community culture. The interviews with the students sought to create a contextual understanding of the students' perspective of the Improvement Science course and related projects as well as learn what key concepts had been integrated. Students were also asked to share what aspects of the course and/or project were important and useful as well as areas that could be improved. The interview guide served as a framework for the conversation, but students were also encouraged to express additional insights and perspectives not addressed through the formal interview questions. The interview guide can be found in the appendix.

3.5.2 Focus Groups

Three semi-structured focus groups were conducted with groups of students in the Algoma School District who were either involved in the Improvement Science course or accompanying programming. The first group involved high school students who were part of a Hands-Only CPR organization. The other two groups were sixth and seventh grade students, respectively, each of which had worked closely with older students on school and community projects. As these students were much younger, the focus groups allowed for a greater sense of ease and openness to discuss their experiences and help contribute to a better understanding of how key concepts had been applied and integrated into their lives. The focus group questions can be found in the appendix.

3.5.3 Qualtrics Survey

To facilitate data collection, a survey instrument was developed in Qualtrics for

distribution to students who participated in the Improvement Science course and projects. The survey included questions about key concepts from the Improvement Science course and related projects. Questions primarily used a scale for responses (e.g. extremely unlikely, moderately likely) but short open-ended questions concerning their experiences were also included. Additionally, the survey was developed so that all survey responses were anonymized. Electronic survey dissemination was sent to 27 students. A total of 22 (81%) survey responses were received. Electronic survey distribution began on Friday, April 21, 2017 and remained active through the middle of May. The survey can be found in the appendix.

3.5.4 Observations

Participant observation was conducted when I attended community events, during a schoolbook group, and in informal meetings with community and school members. These opportunities allowed me to develop a better feel for the community and school, observe applications of key concepts, and strengthen relationships of trust with participants and stakeholders. I took notes during and following my observations and recorded important and salient insights.

3.5.5 Review of Documents

Numerous documents were reviewed to help me gain a better conceptual understanding of the Improvement Science course and related projects. These documents included student work, grant applications, newspaper articles, and training

materials. These documents also helped identify key concepts and in part facilitated the development of survey and interview questions.

3.6 Data Analysis

Data analysis for all elements related to the overall project took place in 3 phases in accordance with the previous reference in the Project Timeline. Phase 1 and 2 consisted of interview and focus group transcript analysis including content analysis and thematic coding using MAXQDA. Phase 3 of the data analysis consisted of both qualitative and quantitative analysis of the survey data. I performed frequency analysis on each of the questions through SPSS as documented in the findings. Additionally, thematic analysis of all open text questions was performed and analyzed individually and thematic elements noted at a more granular level. Data from the interviews, focus groups, surveys and observations were triangulated to identify key findings and themes.

3.7 Ethical Clearance

In preparation for the start of the research study, approval was obtained from the Institutional Review Board (IRB) at the University of North Texas for my research methods and materials. Additionally, clearance to conduct the study from the Algoma School District was received. School administrators reviewed all data collection instruments and forms of communication prior to use. Participants were required to complete and return an Informed Consent Notice before participation in the evaluation survey, interview and/or focus group. For participants under the age of eighteen, parental consent and assent was also obtained. Due to the young ages of many of the

participants, I sought to ensure that information was clearly communicated so that parents and students would know that participation was voluntary and no identifying information would be shared.



Figure 6. Conceptual framework for major themes.

CHAPTER 4

FINDINGS

4.1 Findings Overview

The quantitative results from the survey served as an initial benchmark on where student integration and application of key concepts fell. Later, these results were cross-referenced with the qualitative data (responses and perspectives of students) derived from interviews and focus groups. The following chapter represents an integration of findings from both methods.

While the Harvardx Improvement Science course served as a foundation for Live Algoma's programming with the students, many other key concepts were introduced through books, conferences, visiting professionals and site visits. Thus, the analysis of the data required first identifying what key concepts and themes arose from the students' perspective, followed by a development of a conceptual framework on which those key concepts could be further analyzed. My analysis of the data identified four principle areas wherein student responses and key concepts could be categorized: strategic tools, response to challenges, ways of being/self efficacy and leadership/teamwork (see Figure 7).

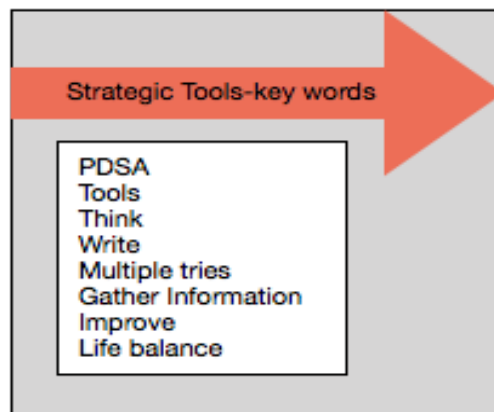


Figure 7. Strategic tools: key words and concepts.

Once these four themes were identified, I was able to evaluate how well these concepts had been integrated by the students. Additional insights were gained through analysis highlighting critical aspects of the program that led to its overall success as well as pointing to areas that need improvement.

4.2 Strategic Tools

One of the main objectives of the Improvement Science course was to increase capacity building within the student population to provide strategies to help them break down and work through projects, problems or other tasks. PDSA (plan do study act) was one of the main tools taught to and used with students. One student described PDSA this way, “By using the PDSA cycle, problems are solved utilizing steps that are easy to follow in order to find a solution in the end.” Nearly all students demonstrated a high level of understanding and application of these concepts during interviews, focus groups and from survey results. Results from the survey showed that 96% of the students agreed or strongly agreed that they had the opportunity to build new skills.

Most students expressed that the PDSA cycle is not explicitly used in a written step-by-step form, but is rather an integrated idea or concept that impacts how they approach goals or challenges (Figure 8). One student shared, “I think that it’s changed [the] way I think about things and the way I think about how I can improve things, but I’m not physically sitting down, writing out PDSAs and studying them.” Results from the survey support these findings where 15 of the 22 (68%) students reported they were extremely unlikely to slightly likely to make step-by-step plans to reach their goals.

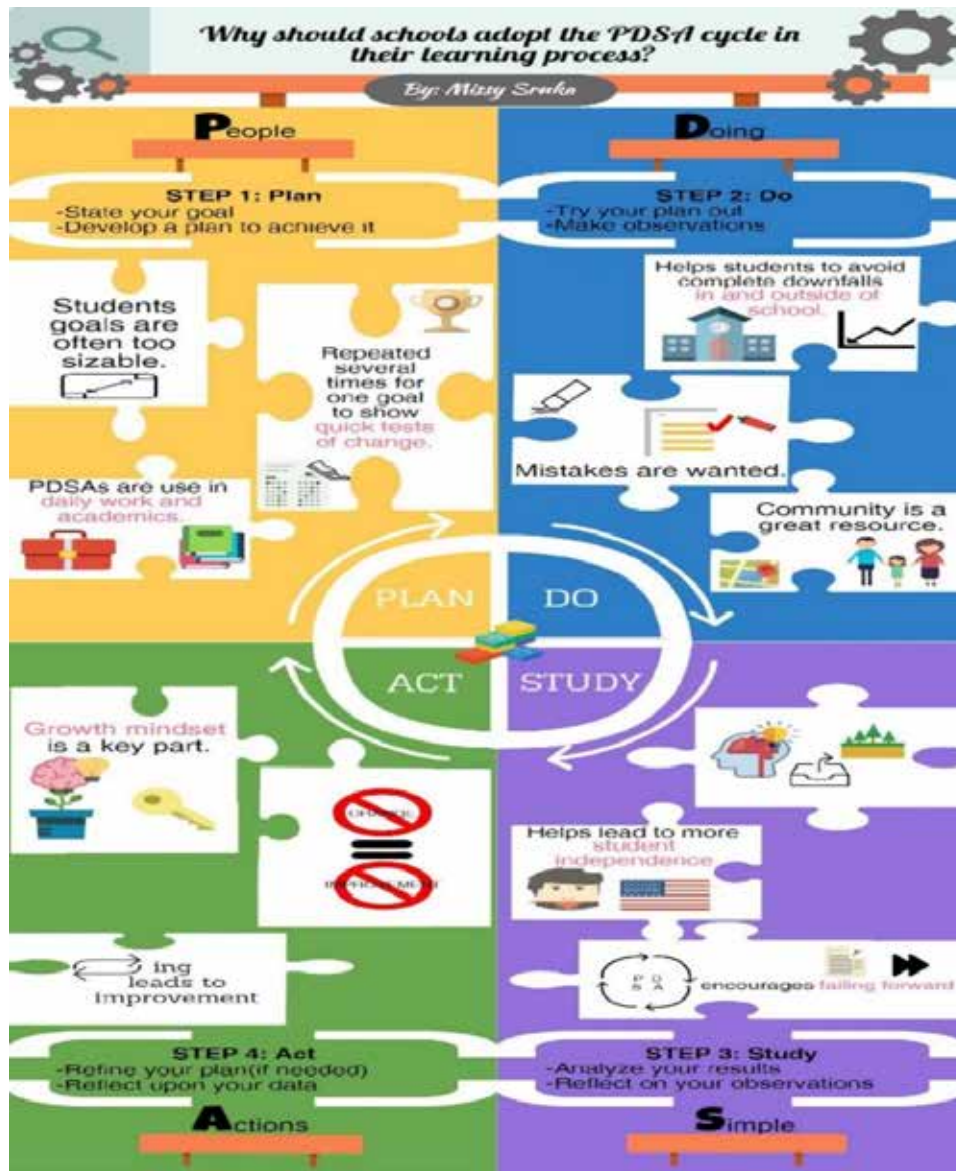


Figure 8. PDSA graphic designed by Algoma high school student.

Many students related examples of using these skills in college and/or their personal lives, ranging from the simple and mundane to significant internal

development. One student who recently graduated, shared how these tools have helped them to be on time while another identified how it helped them maintain balance in life. More poignantly, a student demonstrated how PDSA and related tools helped them to navigate feelings of shame associated with white privilege,

I was stuck with this, you know blaming and shame-feeling. And we talked about how do you go forward with this? How do you take that feeling and use it for the better, fail forward I guess with it. So you know we figured out in a little PDSA cycle. We had our plan. You know what is – how do we want to take this feeling and do something with it. I mean it's obviously a good thing to have a privilege. So there's just gotta be a way that you could take that privilege and do something good with it, so using your white privilege to speak for others who might not always be heard. Or just – there was a lot of ways that we talked through how this can be a positive thing rather than having it feel like a burden. So that was just one that I still to this day – even my living in Green Bay versus Algoma – I'll get that once in a while, that feeling. And I'm like okay, how do I use my privilege as a positive thing and not feel ashamed of it? So that was a big one for me.

This student's response demonstrates the critical impact these tools have had in helping students negotiate their identity and place in the complexity of their surroundings.

Most students displayed understanding and application of these concepts largely through community projects. One group of 7th graders developed an "Ugly Fruits" project where older fruit was donated from a local grocery store to the school as a means to provide healthy snacks for students. This experience helped students put these skills in practice. One 7th grade student related a time when meeting with stakeholders to help put their idea into action:

I remember that day, I was so nervous. They asked us questions like how are we supposed to get the fruits there. We didn't have that plan. How are – how do you think – what are you gonna do with it? What's your next step? And we just didn't know at that time. But then we thought into it because that's like – that meeting helped us think about stuff we never thought about before. Like how do we get it there? And then we thought what our next step is gonna be. And then we called multiple other stores too.

This example highlights how this process was not fully understood and integrated until it was applied to a real life scenario. It also demonstrates the reflective nature of this skill where even when students were not actively writing down ideas, they were able to think through the process. Students then had tools to help them navigate and organize their ideas and actions as they moved forward with their projects.

Along with PDSA and step-by-step plans, students also demonstrated integration of additional skills and ideas associated with strategic tools. Even though students reported that they did not write down step-by-step plans, some students did find value in writing in less structured ways (“Always have something around you to write down your ideas...” 7th grade student). Some students also expressed that working through problems over multiple tries was helpful (“You can’t really just figure something out by doing something one time. You have to do it multiple times to figure what – to get the information that you want” 6th grade student).

4.3 Response to Challenges

Due to the inherent nature of challenges found in most aspects of life and work, the Improvement Science course and related projects worked to help students respond to challenges in more favorable ways and seek to view failure as an opportunity for growth and learning rather than a sign of defeat and deficiency. Student responses showed that they were very likely to respond to challenges in productive ways. One recent graduate shared,

I think failing forward’s a big one, just because everybody fails and...once you fail, you can’t just be done and just hate your life because you failed that one time. But you should get back up and still try and make that change, and still try to work toward your goal.

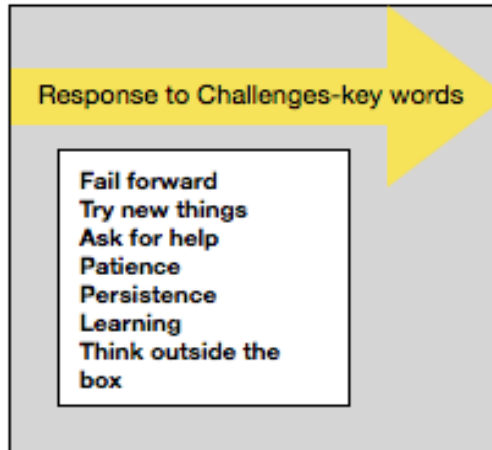


Figure 9. Response to challenges: key words and concepts.

This was the most frequently discussed and referenced concept, particularly in a personal context but also was applied in community and academic settings as well (“I still do that [fail forward] now with grades and sports and everything”). Perceptions surrounding failure and challenges shifted strongly for most students. Prior to the program most students avoided failure or challenges and felt it was a signal to quit, whereas most students now feel inclined to use failure as an opportunity to learn, improve and try again.

I absolutely wouldn't [face failure]. I would refuse to face any – I would be such a perfectionist. It's like when I – even just say writing a paper. Not even gonna put down a sentence until I know that it is perfect. It's like – some kids, they write a first draft and – never. I can't. I just always would write my final draft just as it is. I was like – I always have to put my best forward, and so that was a big problem that I had...

How do I approach failure [now]? Kind of more – not even as a failure. Kind of just as a success, because if you have failed that means you have done something. If you don't fail at all, you have – not failing is a failure because you have not tried anything. You're not gonna learn anything from that. (High School Student)

Eighteen out of 22 (82%) students reported they were moderately to extremely likely to stick with something even if it's not easy and would find a new solution when a

problem was not working. 19 out of 22 (86%) students reported they were moderately to extremely likely to “fail forward” when faced with a challenge. As I met with students, they often deftly held these two opposing ideas – success on one hand and failure on the other and found a way to bridge them together to move towards an improved state and an empowered sense of self in relation to their challenges. Often students were able to see a bigger picture and think more broadly leading them to see how their persistence and continued efforts at solving a problem could impact not only themselves (“I’ll come out better on the other side next time.”) but others as well.

Table 3

Response to Challenges

n=22	Extremely Unlikely n(%)	Moderately unlikely n(%)	Slightly unlikely n(%)	Neither likely nor unlikely n(%)	Slightly likely n(%)	Moderately likely n(%)	Extremely likely n(%)
stick with something even if it's not easy	--	--	--	--	3(13)	14(64)	4(18)
try new things	--	--	--	1(5)	5(23)	8(36)	8(36)
problem not working - find a new solution	--	--	--	2(9)	2(9)	11(50)	7(32)
ask for help	2(9)	--	1(5))	4(18)	7(32)	6(28)	2(9)
patience working a problem	2(9)	--	--	1(5)	9(41)	6(28)	4(18)
“fail forward” face challenge	--	--	1(5)	2(9)	--	11(50)	8(36)

In contrast, patience and asking for help were less strongly demonstrated in student responses. Less than half the students (46%) responded they were moderately to extremely patient when working through a problem. The word “patient” was only used

twice in the entire course of all interviews and focus groups. Though patience was an integral part of the course and projects, students did not show a clear integration of this concept. Additionally, only 37% of students were moderately to extremely likely to ask for help when facing a challenge. When I met with the 6th grade students, they shared how helping each other was an important part of their overall project success, but no other group or individual demonstrated that “asking for help” was an important and integrated aspect when facing challenges (see Table 3). Response to Challenges survey data is presented below for additional context and cross-question comparative purposes.

4.4 Ways of Being/Self-Efficacy

When teaching Improvement Science, the PDSA process served as a foundational framework but the “ways of being” were also an integral part of the program. Ways of being address the individual development and character of each student. As one teacher wrote regarding ways of being, “The PDSA process is just a simple tool; however, it is the language and culture around the tool that ignites the power within individuals and communities.”

There was not a single interaction with any student where some visible expression of excitement or enthusiasm for the Improvement Science course and related projects was not seen. Smiles, giggles, and deep sighs of satisfaction were frequent parts of our interviews and discussions. It was in fact two students’ enthusiasm for their projects that led me to investigate and research this topic. Survey responses supported these observations showing that 90% of students felt high levels of

excitement for the program. This enthusiasm was often expressed in relation to the high levels of affirmation and encouragement students received in the program. All students (100%) reported that they were moderately to extremely likely to have their opinions heard and 90% reported that they were moderately to extremely likely to feel that their ideas mattered. Time after time, students shared examples where they had been given space to make their own choices and determine what projects to pursue. This ability to co-construct the learning process increased their sense of ownership and responsibility over their projects (Figure 10). “I’ll walk through [the school], and as I’m walking, I always pass one of the book boxes. And I always just look at it and say, I did that.” (7th grade student).



Figure 10. Student book box.

Most students felt they were treated as adults, not “kids”. They felt an increased sense of value in their knowledge, skills and capacity to make a difference. After meeting with a high level leader and learning that she had spoken about them with the Dalai Lama, one student reflected on this increased a sense of validation noting that, “[This experience] makes me feel happy that we can change something in the world and that we can make a difference.”



Figure 11. Students teaching Hands only CPR (Source: <http://livealgoma.org>).

Helping others and service were strongly applied concepts. 20 out of 22 (90%) students reported they were moderately to extremely likely to help others. This ability to make a difference was applied in multiple community and school projects and also created positive feelings about themselves and others (Figure 11).

Because at the end of the day you're gonna be the one changing someone's life. And it's a life-changing experience. And if you have the chance to do it [help others], do it, because the faces you see of the people that are being impacted – it's just like in the movies and on TV, it's the best feeling you get. And there's no other feeling like it. It's just one of the best things I've ever done in my school. I hope we do it again because I still want to do it. (7th grade student)

Optimism is one of the principal areas whereon "ways of being" centers.

Responses from students showed that 18 out of 22 (82%) students were moderately to extremely likely to have a vision for their future. However, when asked whether they expect good things to happen to them, these numbers drop, particularly for graduated seniors. Five out of 7 (71%) graduated seniors reported they were moderately to slightly unlikely to expect good things.

Table 4

Ways of Being

n=22	Extremely Unlikely n(%)	Moderately unlikely n(%)	Slightly unlikely n(%)	Neither likely nor unlikely n(%)	Slightly likely n(%)	Moderately likely n(%)	Extremely likely n(%)
Vision for future	--	--	--	1(5)	3(14)	9(41)	9(41)
Find bright spots	--	--	--	3(14)	6(28)	8(36)	5(23)
Expect good things	--	1(5)	4(18)	3(14)	4(18)	5(23)	5(23)
Future turn out well	--	--	1(5)	1(5)	6(28)	8(36)	6(28)
Help others	--	--	--	--	2(9)	7(32)	13(60)

Table 5

Self-Efficacy

n=22	Strongly disagree n(%)	Disagree n(%)	Somewhat disagree n(%)	Neither agree nor disagree n(%)	Somewhat agree n(%)	Agree n(%)	Strongly agree n(%)
Excitement in program	--	2(9)	--	--	--	9(41)	11(50)
Explore new ideas	--	--	--	1(5)	3(14)	9(41)	9(41)
Opinions heard	--	--	--	--	--	9(40)	13(60)
Make own choices	--	--	1(5)	--	4(18)	6(28)	11(50)
Felt Ideas mattered	--	--	1(5)	--	1(5)	9(40)	11(50)
Better in school	--	--	--	1(5)	5(23)	10(45)	6(28)

4.5 Leadership/Teamwork

Many of the assignments and projects from the Improvement Science course and related programs were embedded in groups and community settings. Students worked together to develop school and community projects ranging from Hands-only CPR to lunchroom cleanup practices to sexism in the schools. Older high school students taught 6th and 7th grade students the principles of Improvement Science.

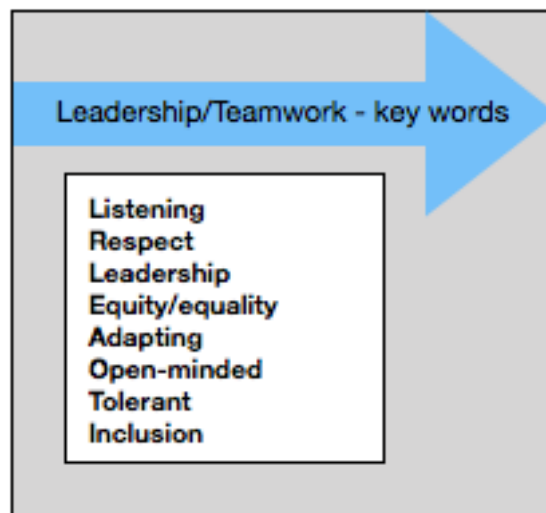


Figure 12. Leadership/teamwork: key words and concepts.

Twenty out of 22 students (90%) reported they were moderately to extremely likely to listen to other people's ideas. One student who has graduated expressed it this way, "I also had to teach myself to take a seat back and learn other people's perspectives before even considering my own. And that quickly taught me to adopt other perspectives rather than reject or just completely accept them for what they were. And as I've continued to do that, I find that I actually relate with a lot of people on a lot of issues far more than I used to simply because I have a larger viewpoint."

Most students discussed leadership principles that they were able to develop and use throughout the program. 19 out of 22 (86%) students felt they had opportunities to

lead. Many students reported a heightened awareness of other people’s perceptions and capabilities. An important aspect of their leadership was learning how to adapt concepts for younger students. (“Everyone can’t absorb things at the same level... So some things just need to be taught differently.” Graduate)

Some students were mindful of how each individual functioned as part of the whole and strived to lead in a way that included and benefitted all parts “making sure that when you make these changes, that you’re involving everybody in a way that’ll benefit them, and not how you think you’ll benefit from it.”(Graduate) One graduated student also commented about finding his strength as a public speaker noting that, “I think finding your niche within your group of teammates is very very important.”

Table 6

Leadership/Teamwork

n=22	Strongly disagree n(%)	Disagree n(%)	Somewhat disagree n(%)	Neither agree nor disagree n(%)	Somewhat agree n(%)	Agree n(%)	Strongly agree n(%)
Leaders knew you	1(5)	--	--	2(9)	2(9)	6(28)	11(50)
Opportunity to lead	--	--	--	3(14)	--	2(9)	17(77)
Know Pillars of Power	1(5)	--	1(5)	1(5)	4(18)	9(40)	6(28)
Know difference between equity/ equality	--	--	--	2(9)	3(14)	9(40)	8(36)
Listen to other ideas	1(5)	--	--	--	1(5)	11(50)	9(40)
Respect others even when disagree	--	1(5)	--	--	5(23)	6(28)	10(45)

4.6 Strengths of Program

One of the most common responses reflected how students appreciated the non-traditional approach to learning. This included real world applications and improving the community or school. One 6th grade student noted that “we’re helping while we’re learning.” And another concluded that, “taking what we learned and doing something with it was I really think that’s what made it so successful for us” (Graduate). Students also were invigorated by leaders who incorporated student led ideas and passions, commenting that, “it was a whole different way of thinking than what we learned in school” (Graduate) and that it felt “personalized.”

The people students met and worked with were key factors leading to its success, none more so than Teal Van Lanen and Nick Cochart². One student described Teal as “a person that’s super huge” and another appreciated the efforts made by Nick Cochart, pointing out that, “he moved mountains for us.” These feelings were reiterated during informal conversations numerous times over the course of my research. Countless times students expressed how they “wanted to be Teal when they grew up” and shared how she had been instrumental in helping them navigate difficult personal challenges. I also continued to learn more about the dedication Nick continuously showed to his students and school. With limited funds for staff and an increase in students requiring special services, Nick had decided to help by working with one student each afternoon in his office and helping them personally. This not only had a direct impact on that student, but demonstrated to the rest of the school and staff that

² Teal Van Lanen is a former teacher and now works as the Program Director/Improvement Advisor for Live Algoma and is the District Wellness Coordinator. Nick Cochart is the Superintendent for the Algoma School District.

he was willing to “go the extra mile” to help ensure the success of all students. Students also mentioned their classroom teachers, community health leaders and people whom they met at conferences as contributors to the program’s success.

Conferences had a significant impact on almost all students who were interviewed. Based upon responses, this was largely due to the fact that students were able to leave their school environment and see new places and meet new people. One student shared the following about attending a conference,

I live in Wisconsin, a little town in Wisconsin so there is no diversity whatsoever. Everyone is the same and that’s all I’ve ever known. So when we went down there, there was so much diversity. We were in Florida. There were people from all over the world. And so this was just kind of mind blowing for me.

While relevance and connection to local place was an important aspect of the program, opportunities to expand the students’ viewpoints was transformational as they were transported beyond the world as they had known it and were able to begin building new frameworks of understanding.

4.7 Challenges

Though the Improvement Science class and associated programs were successful overall, there were challenging aspects that students faced. When interviewed, students initially had difficulty directly expressing their concerns. However, as the conversations progressed, hints at challenges were shared which I later asked them to expound upon. Some of these issues were double edged – highlighting both strengths and challenges. For instance, many students wished that they had more time in the program and had started when they were younger. In addition, most of the graduates felt some disconnect from the program and felt it was difficult to maintain

connections after graduation. While many high school students often wish to distance themselves from all things related to school, their responses clearly show an intense appreciation and interest in the program and its key concepts and a desire for continued associations.

Additional concerns mentioned by students included the following:

- Readiness - some students felt that a certain readiness and preparation was needed before beginning this program.
- Busy schedules - most of the older students in particular noted how difficult it was at times to fit everything in.
- Some students felt that better communication between leaders and the group and also between students should be taught and utilized.
- Some of the older students felt there were too many projects at once and that they were unable to focus on their personal projects.
- Some students disliked the kitchen space for meetings and suggested finding a legitimate learning space.

CHAPTER 5

DISCUSSION

5.1 Key Findings in Perspective

As noted previously, results indicate that overall, students show a strong understanding and application of key concepts from the Improvement Science course and related projects. Most notably the concepts around skill building, failing forward, willingness to help others, and leadership and teamwork stood out as particularly meaningful areas. Recent New York Times bestseller “The Gift of Failure” by Jessica Lahey (2015) stands as an example to the relevance and shared interest these concepts have in the public discourse as well. In her book, Lahey discusses the importance of embracing failure in the context of school and home. She offers insight into how parents and educators alike can let go of control and help their children and/or students succeed through learning to navigate life’s inevitable failures instead of avoiding or shielding them from challenges.

Nearly every student expressed some degree of enthusiasm and support for this program. It had a profound impact in helping students realize their potential and capacity to influence the world around them by teaching them skills and concepts that enabled them to participate in meaningful school and community projects.

“Ethnographic observation of one’s own educational and life experiences leads to a clarity of self, and a self-recognition among students and teachers leading to a greater awareness of their actions, capabilities, and possibilities” (Cammara 2016, 519). A recent graduate’s comments illustrate this idea, “We didn’t know how we wanted to make this change or what exactly this change was. But we wanted to do something.”

As seen with Cammarota's study with the Social Justice Education Project (2016) the pedagogy used during the Improvement Science course and related programs "connects the students learning to their lived context, which makes education relevant, interesting, and vital for students" (526). One student noted, "Learning is about connecting it to different things and using it to make changes, not just so that you can spit words out on a test" (Graduate). Students were encouraged to apply their knowledge and ideas to problems they saw and cared about rather than requiring them to follow a pre-determined universal path.

Additionally, the analysis revealed some inconsistencies in several areas – strategic tools, response to challenges and ways of being. Despite overall high response rates associated with a vision for their future (82%), 71% of graduated student responses indicated challenges to expecting good things to happen to them. This discrepancy could be related to a change in environment (most had moved away from Algoma) and increased responsibilities they now faced in their academic, professional and personal lives (i.e. college, military service, job, etc.). As stated earlier, many of the graduates felt a disconnect from the program and leaders, and this physical and emotional distance from the support of Live Algoma and their community could be a potential reason for a somewhat dimmed outlook on their futures. Moreover, students also showed a strong understanding of failing forward, but responded that they were less likely to ask for help or have patience when facing these challenges. To better understand this contradiction in responses, further analysis could be performed by comparing responses to future student groups and exploring this topic in more depth. Likewise, students also reported that they felt the program had helped them build new

skills, but when the questions focused in on PDSA and step-by-step tools, students reported a much lower association with those specific tools. As was previously noted, the fact that the PDSA process is not reflected in a concrete form does not mean that the principles were not learned. Students did demonstrate that they were familiar with the process and used it more cognitively rather than concretely on paper. This difference may also point to a need to change expectations within the educational setting so that students are not only evaluated on the concrete work they produce but also on how they think and respond to challenges. Further analysis is suggested to determine what type of skills students are referring to and how PDSA and other tools are being used in a variety of ways.

In the end it was not so much the content of the Improvement Science course but rather the praxis and application of key concepts that helped change, enlarge, transform and educate the students. Similar to Cammarota (2008) and Aguilera (2009), Live Algoma and the Algoma School District used forms of ethnographic and reflective tools that came to the same end: “youth with inquiry skills and critical consciousness who see themselves as agents with the right and the capacity to change the world they live in” (Schensul 2016, 128). Students were able to “position themselves and construct identities as deserving, capable and professional young adults” (Nygren, 50). The Improvement Science course and programs not only had a social impact on the community but also on the individual participants. A middle school student shared how empowering it was to be supported by adults who believed in their capacity as social change agents, noting, “They [adults at the conference] were thinking that we could actually – they thought we could actually make a change in how the society was.”

Jewett and Schultz (2016) remind us that “teaching and learning take place across a range of formal and non-formal settings” (426).

Leaders, teachers and students from Live Algoma and the Algoma School District were willing to take risks and disrupt the traditional approach to education and work toward creating spaces of belonging, deep inquiry and action. Similar to sociocultural principles and Funds of Knowledge (FofK), the Improvement Science course and related programs are grounded upon the idea that “knowledge and learning are embedded in social relationships, and that transforming those relationships would enhance learning and the co-construction of knowledge” (Gonzalez, Wyman, and O’Connor 2016, 483). Though participants may be hesitant to accept and identify the important role they played, I feel Freire’s words are an apt description of the type of social agents they are:

The more radical the person is, the more fully he or she enters into reality so that, knowing it better, he or she can transform it. This individual is not afraid to confront, to listen, to see the world unveiled. This person is not afraid to meet the people or to enter into a dialogue with them. This person does not consider himself or herself the proprietor of history or of all people, or the liberator of the oppressed; but he or she does commit himself or herself, within history, to fight at their side (*Pedagogy of the Oppressed*, Preface).

5.2 Deliverables to Client

At the conclusion of my research project a final step involved presenting these findings to my client in a useful and accessible format. To begin, I provided my client with a final report in two forms. The first report (Appendix D) was a longer and more detailed version intended for the stakeholders intimately associated with Live Algoma and the Algoma School District, such as administrators, program directors, and

community leaders. I met with several of these stakeholders and discussed the findings and also provided several recommendations. When we met, they had just returned from a national recognition event celebrating their Culture of Health award. They were also in the midst of planning a local celebration, with students as co-collaborators, demonstrating once again the participatory values inherent in Live Algoma. Emotions were high and there was a palpable energy felt in the room as we discussed the impact this program had on their students. This report will be used to highlight the impact this program has had on students and will aid in gathering additional and continued support for their efforts. A brief overview of the report (Appendix E) was also created so that the highlights could be shared quickly and easily with community and school members who may have limited time and or knowledge about the program. I will also present these findings to the high school students as part of their efforts to remind their student body of their potential to be successful and make positive change in their lives and community. Lastly, I have been in discussion with Teal about connecting a student club I mentor at my local high school with their students to share what they have done and learned.

5.3 Recommendations

The evaluation results point to several recommendations to be taken into account for future evaluations as well as suggestions to enhance and improve the Improvement Science course and related programs. These include:

- Administering a pre- and post-test/survey for students taking the Improvement Science course and for a control group not enrolled in the course. This will help

evaluate more specifically the extent of assimilation of concepts. We had no baseline information to evaluate and analyze how the program impacted students over time.

- Compare results with other groups year to year. This evaluation was limited in that there were no other groups with which we could compare and contrast results and the overall research group was relatively small. While variables such as age and gender did not demonstrate large differences, the analysis did show that these aspects can impact responses. For instance, as noted previously, age did play a role in how students perceived their future. A larger body of data would enhance the analysis of this work and provide a rich depth of information that could look more deeply at differences in place, demographics, age, etc. This could help teachers and administrators better tailor and adapt the program in relation to these differences.

- Increase emphasis on implementation of PDSA in non-course related projects. In sharing these initial results with faculty and staff, teachers can be invited to find creative ways to include these principles in their teaching.

- Increase emphasis on patience and asking for help. Encourage teachers, administrators and staff to support students in these areas through traditional and non-traditional teaching pedagogies. Live Algoma can be a great resource in supporting and instructing this process.

- Provide opportunities for students to reflect on what they learned from failure and help them incorporate that knowledge into future plans. Create and support a school culture where failure is acknowledged and re-framed as a means of growth and a healthy part of learning and development. Work to remove the negative stigma associated with failure.

CHAPTER 6

REFLECTION

While every attempt was made to be objective throughout the research process, there was a continuous strand of personal connection to the project. My interest and intersection with the subject matter was at times challenging to separate – my experiences as a mother and educator often would enter in without warning. Paulo Freire argues that, “one cannot conceive of objectivity without subjectivity” adding that, “to deny the importance of subjectivity in the process of transforming the world and history is naïve and simplistic. It is to admit the impossible: a world without people” (2000, Kindle location 631). The heart of this project was the people and the moments of connection I experienced, recorded and witnessed. There was not a single interaction with Live Algoma and the students where I did not leave feeling more inspired and encouraged. At times I would have to stop myself from talking at length about Live Algoma and the incredible insights I was gaining from them. While reading an article for my Anthropology of Education class I came across the words of Frederick Erickson (1984), which stood out to me in bold,

It was I who was there doing the fieldwork, not somebody else. My fundamental assumptions and prejudices are part of my *me*. I cannot leave them at home when I enter a site. I must study a place as me...The desirable goal is not the impossible one of my disembodied objectivity (I am a subject, not an object) but of clarity in communicating my point of view as a subject, both to myself and to my audience. In addition to being me to my audience, as an ethnographer I have an obligation to have been there. Really being there means experiencing strong relationships with whomever else is there (one’s informants). Some of these relationships may feel good and others may hurt...[I]t is not involvement at arm’s length” (60-61).

Anderson et al. write that “qualitative research does not seek to generalize one study to all other similar studies; instead it seeks to explain behavior in one setting

which, if it reminds the reader of his or her own setting, has been successful” (2007,110). If this is true, which I believe it to be, then this research was successful even before this manuscript was written, for I, myself was reminded of my own setting and gained a greater understanding of the world I inhabit. Through the courageous and innovative work of the students and teachers in Algoma, I was able to have a front row view of what it looks like to change the world and I feel ever so slightly capable of doing so myself in the coming days ahead. I can only hope that this study will impact others so that collectively we can effect positive change and improve.

APPENDIX A
IMPROVEMENT SCIENCE SURVEY

Greetings! The purpose of this survey is to find out more about your experience with Improvement Science Tools and being part of Live Algoma. Our goal is to learn from your experiences and opinions to help make the program better for you and others. This survey should take no more than 15 minutes. Below are the questions that ask about you and some of the things you think and feel about yourself and this program. This is not a test. There are no "right or "wrong" answers. Please answer each question openly and honestly to the best of your ability by selecting the answer that is most true or like you. This survey is completely voluntary. You do not have to answer any of the questions if you don't want to, and you can stop the survey at any time. The following survey is anonymous, it does not ask for your name, and all results will be kept confidential, which means that no one (not your parents, teachers, school staff or other students) will be allowed to know how you answer these questions. Thank you in advance for your time!

Q2 Young people (youth) might describe themselves in many ways. We have listed some things youth might say or think about themselves. For each statement below, please select the answer that is most true for you.

	Extremely unlikely (1)	Moderately unlikely (2)	Slightly unlikely (3)	Neither likely nor unlikely (4)	Slightly likely (5)	Moderately likely (6)	Extremely likely (7)
How likely are you to stick with something even if it's not easy? (1)							
How likely are you to listen to other people's ideas? (2)							
How likely are you to believe/trust that your future will turn out well? (3)							

<p>How likely are you to expect good things to happen to you? (4)</p> <p>Even if you might fail, how likely are you to try new things? (5)</p> <p>How likely are you to make step-by-step plans to reach your goals (6)</p> <p>If your solution to a problem is not working how likely are you to try to find a new solution? (7)</p> <p>How likely are you to respect what other people think, even if you disagree? (8)</p> <p>When facing a challenge, how likely are you to ask for help? (9)</p> <p>How likely are you to be patient when working through a problem? (10)</p> <p>How likely are you to help others in your community? (11)</p> <p>How likely are you to find "bright spots" in each day? (12)</p> <p>How likely are you to have a vision for your future? (13)</p> <p>How likely are you to "fail forward" when you face a challenge? (14)</p>							
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Q3 Below are some statements that might describe how you feel about your Improvement Science Class and/or your project. For each statement below, please indicate your level of agreement.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Were there things in this program that were exciting for you? (1)							
Has this program helped you do better in school? (2)							
Has this program provided you with the opportunity to build new skills? (3)							
Have you used Plan-Do-Study-Act (PDSA) approaches and/or strategies in planning your future goals? (4)							
Did this program help you explore new ideas? (5)							
Did the adults/leaders in this program take the time to get to know you? (6)							
Did the program allow you to make your own choices? (7)							
Did this program give							

<p>you the opportunity to be a leader? (8)</p> <p>Did this program help you to know who the Pillars of Power are in your community? (9)</p> <p>Did this program help you to feel that your ideas mattered? (10)</p> <p>Did this program allow your voice and opinions to be heard? (11)</p> <p>Did this program help you understand the difference between equity and equality? (12)</p>							
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Q13 Was there anything in this program that was particularly important to you?

Yes (1)

No (2)

Condition: No Is Selected. Skip To: What is your gender? Please select fr....

Q14 If yes, please share what about the program was important to you.

Q4 What is your gender? Please select from the list below.

Female (1)

Male (2)

Other (3)

Choose not to answer (4)

Q5 In what grade are you currently?

6th Grade (1)

7th Grade (2)

- 8th Grade (3)
- 9th Grade (4)
- 10th Grade (5)
- 11th Grade (6)
- 12th Grade (7)
- Graduated last year (8)
- Administration and/or Faculty (9)

Q6 How long have you lived in Algoma?

- Born and raised in Algoma (1)
- 1-3 years (2)
- 4-5 years (3)
- 6-10 years (4)
- 11-20 years (5)

Q7 With which ethnicity group do you most identify

- White/Caucasian (1)
- Black/African American (2)
- Native American (3)
- Hispanic (4)
- Asian (5)
- Other (6)

Q8 With which program(s) were/are you most involved?

- Senior Class - Improvement Science/Projects - Academic Year 2015-16 (1)
- Book Club - Academic Year 2016-17 (2)
- Book Club/Blueprint - Academic Year 2015-16 (3)
- 6th Grade Lunch Room Recycling Project 2016-17 (4)
- 6th Grade Community Projects 2015-16 (5)
- Hands-only CPR Team (6)
- Independent Work (7)
- Live Algoma Committee (8)
- Other, please specify (9) _____

Q9 What advice would you give to other students or teachers participating in a similar program? Maximum 500 characters

Q10 What are 3 key concepts or ideas that you have learned from this program?

- I learned (1)
- I also learned (2)
- And I learned (3)

Q11 If possible, please share any other thoughts you have about the program or Improvement Science

APPENDIX B
INTERVIEW GUIDE

Semi-Structured Interview Guide

Part 1: Introductions and Setting the Right Atmosphere

Introduction (5 to 10 minutes)

Place – A comfortable place to sit at public location chosen by participant

Explain the purpose of the study

“My name is . I am a student at the University of North Texas studying applied anthropology. You are being asked to participate in a research study sponsored by Live Algoma which aims to unpack and evaluate the experiences and significance the Live Algoma-Improvement Science course/project had on students during the 2015-2016 school year. Live Algoma is committed to serving their community and wants to include the voices of their younger community members. Research conducted directly with the students will help identify what lessons and insights were learned, what variables contributed to successful outcomes, and what areas need improvement.

“Do you have any questions?”

Part 2: Obtain consent

Have informed consent forms available for signing. This form is one that we will also sign, to ensure our commitment to you regarding confidentiality.

“I know that when we asked you to participate, you agreed to be audio taped. All audio tapes are for me, to use to inform the research and final report we will provide to our clients. The audio and recordings will be used to create accurate accounts of your opinions, suggestions and experiences.”

Bring out the tape recorder.

What will happen today.

“We’re going to spend about 60 minutes with you today. We can take a break if you need one. First, I am going to ask you some questions that I have prepared and then we’ll see what other questions or topics might come up in relation to your responses.”

Characterize our expectations and the kinds of information we’ll be seeking.

“I’d like to leave here today with an understanding of your experience with Improvement Science and the ways it impacted your life. I also want to learn about any suggestions you may have.”

Let informants know that their perspective is important and unique.

“I want you to feel comfortable during this interview—if you want to walk around, take a break—I want you to feel at ease as much as you can while I ask you all these questions! In this kind of research, I am very interested in your particular and unique experience, and I thank you for your time and participation.”

Part 3: Background information about our Participants

“Before we talk about your experience with Improvement Science could you share some background information about you and your interests?”

Probes: some information to make sure to gather by asking or by observation: All of the following should be used as reminders to probe if the interviewee does not provide this information.

Do **NOT** got down this list. Instead let them tell you about themselves. Use the following list to remind yourself to **probe** on these topics if not covered.

Age

Gender identity

Post high school pursuits (school, job, military, etc) or

Type of profession (for staff and faculty)

Number of years in Algoma and at Algoma High School

Family background (parents married/divorced/single, years of school completed by parents, number of siblings, etc.)

Part 4: Improvement Science Questions

After you get background information, gather any general thoughts about the Improvement Science class. Begin with these questions, but allow for follow-up or additional questions as the interview progresses.

“How do you feel about the Improvement Science class?” Probe as to why they feel that way and how it made them feel during the class.

“To what extent has it impacted your life? Can you give me an example?”

Probe on types – academic, personal, professional?

“What class lesson do you remember best? Can you tell me about it?”

“What knowledge from the class do you use in your life today?”

Probe on types – and how used

“What made this class successful?”

“What challenges did the class face? What challenges did you face in the class?”

"Of the people you worked with, who had the biggest impact? Why?"

"Tell me about your experience mentoring the middle school students."

Probe on what they learned

How it was completed

What aspects of Improvement Science were used

What they enjoyed/would change

"Are there some aspects of the Improvement Science class that you would change? If yes, what? and Why? Can you give me an example?"

Part 6: Interview Wrap-up (10 minutes)

Share impressions from the interview and get reactions and ask

"Did we miss anything? Do you have questions for us?"

Thank the participant for their time and for sharing their insights and experiences.

Part 7: Post Interview Debrief

After the visit, write up your field notes (noting any insights), assign your informant a number.

APPENDIX C
FOCUS GROUP PROTOCOL

Focus Group Protocol

Live Algoma-Improvement Science

Introduction

Explain the reasons for getting together

Obtain/Review that consent forms have been received

Make sure everyone is introduced

Let everyone know what will happen during the get together/focus group

Questions/Discussion

Focus area #1 What was your favorite/most memorable part of the Improvement Science project? Why?

Focus area #2 How did you work with the High School students? What was their role (from your perspective)?

Focus area #3 How did you feel about the project? About yourself while you were involved with the project? (proud, embarrassed, confident, joyful, nervous, etc) Why?

Focus area #4 What was difficult about the project? What would you do differently next time?

Focus area #5 Is there anything you learned that you still use or feel is important? If so what? Why?

Wrap up

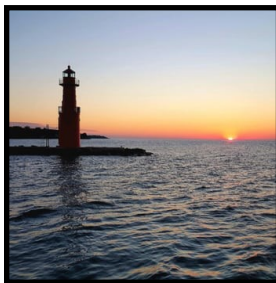
Thank the participants –ask for final thoughts or if anything was missed.

Emphasize the relevance and importance of the insights they shared.

APPENDIX D
CLIENT REPORT

“It’s possible to change the world...”

Students, Improvement Science and Shifting Perspectives at Algoma School District



Evaluation report for the Algoma School District and Live Algoma
Prepared by Jodi Williams
October 2017

Table of Contents

INTRODUCTION

METHODS

DEMOGRAPHICS

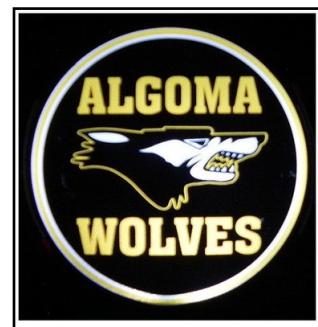
FINDINGS

DISCUSSION &

RECOMMENDATIONS

Introduction

The perspective of a student is one that is often overlooked and underutilized in assessing and evaluating learning experiences and programs. A quick look into any academic library will reveal the shortage of this type of research and yet the knowledge gained from these participants provides valuable first person accounts and insights into systems and communities that might otherwise be unseen. This project was undertaken to unpack and evaluate the impact and understanding of the key concepts shared during the Live Algoma- Improvement Science course/and associated projects on students during the 2015-2016 and 2016-17 school years.



The findings from this research provide strategic and targeted insights into the success of the course and opportunities for refinements in future Improvement Science courses and school and community projects with Live Algoma and the Algoma School District. This report endeavors to both strengthen and inform the work Live Algoma is doing and highlight to the community and other stakeholders the valuable impact this initiative is having on the students.

Main Evaluation Question

To what extent are key concepts learned by students in the Improvement Science course and related projects being applied?

Additional questions asked: What were the strengths of the program? What were its challenges?

Methods

This project utilized a mixed methods approach and was facilitated with input and collaboration from teachers and administrators from the Algoma School District. All data collection took place between January and May 2017 and was conducted by Jodi Williams.

Interviews

- 10 semi-structured interviews were conducted with past and current participants of the Improvement Science course and related programs. 6 additional semi-structured interviews were conducted with district employees who were program leaders in Live Algoma or related Improvement Science programming.

Focus Groups

- 3 semi-structured focus groups were conducted with 3-9 students of the Algoma School District who were either involved in the Improvement Science course or accompanying programming.

Online Survey

- An online survey developed in Qualtrics was used to quantitatively evaluate students' perspectives and attitudes surrounding key concepts from the Improvement Science course and related programs. The survey was taken by 22 students. All responses were anonymized.

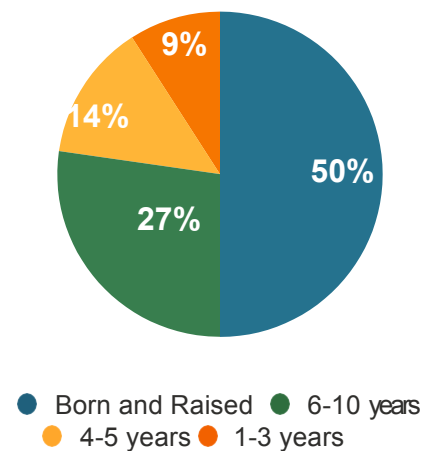
Observations/Review of Documents

- The researcher also observed community events, school meetings and city surroundings and completed a review of relevant documents.

Demographics

A total of 27 students participated in the overall research study (see Figure 1 below). 22 students completed the survey. Of those students, 19 were female and 8 were male. All but two students reported that they were White/Caucasian with the other students reporting Hispanic ethnicity. Additionally, participants (77%) were primarily native to Algoma or had lived in Algoma for over 6 years.

Residency in Algoma



Year in School	# of Students
Graduates	9
High School Students	5
7th grade	9
6th grade	4

Figure 2- Student Participants

Findings

The following themes were found from the analysis of the data: Strategic Tools, Response to Challenges, Ways of Being/Self Efficacy and Leadership/Teamwork. Additional insights were gained highlighting critical aspects of the program that led to its overall success as well as pointing to areas that need improvement.

1. Strategic Tools

key words and related themes: PDSA, skills, tools, planning, think, write down ideas, multiple tries, getting information, goal, system, improve, increased life balance, organize

“Before we did [PDSA] I would almost give up. But now after the PDSA, I figure that I can – if I try again, I will get it. If I don’t get it again, I try again. And hopefully somewhere down the line, it will happen.” 7th grade student

One of the main objectives of the Improvement Science course was to increase capacity building within the student population to provide strategies to help them break down and work through projects, problems or other tasks. PDSA (Plan Do Study Act) was one of the main tools taught to and used with students.

- Nearly all students demonstrated a high level of understanding and application of these concepts during interviews, focus groups and from survey results. *86% of students indicated that they agreed or strongly agreed that they had the opportunity to build new skills.*

- Many students related examples of using these skills in college and their personal lives. Most students displayed understanding and *application of these concepts largely through community projects*.
- Most students expressed that the PDSA cycle is *not explicitly used in a written step by step form, but is rather an integrated idea* or concept that impacts how they approach goals or challenges. One student shared the following, *“I think that it’s changed [the] way I think about things and the way I think about how I can improve things, but I’m not physically sitting down, writing out PDSAs and studying them.”* Results from the survey support these findings where *15 of the 22 (68%) students reported they were extremely unlikely to slightly likely to make step by step plans*.

2. Response to Challenges

key words and related themes: fail forward, try new things, new solutions, ask for help, patience, value in failure, don’t give up, persistence, new perspective, opportunity for learning, think outside the box

“I think failing forward’s a big one, just because everybody fails and...once you fail, you can’t just be done and just hate your life because you failed that one time. But you should get back up and still try and make that change, and still try to work toward your goal.” Graduate

Due to the inherent nature of challenges found in most aspects of life and work, the Improvement Science course worked to help students respond to challenges in more favorable ways and seek to view failure as an opportunity for growth and learning rather than a sign of failure.

- Student responses showed that they were very likely to respond to challenges in productive ways. *This was the most frequently discussed and referenced concept, particularly in a personal context but also was applied in community and academic settings as well.*
- Perceptions surrounding failure and challenges shifted strongly for most students. Prior to the program most students avoided failure or challenges and felt it was a signal to quit, whereas most students now feel inclined to use failure as an opportunity to learn, improve and try again.

- 19 out of 22 (86%) students reported they were moderately to extremely likely to “fail forward” when faced with a challenge.
- 18 out of 22 (82%) students reported they were moderately to extremely likely to stick with something even if it’s not easy and would find a new solution when a problem was not working.
- In contrast, *patience and asking for help* were less strongly demonstrated in student responses

3. Ways of Being/Self-Efficacy

key words and related themes: vision, bright spots, expect good things, help others, excitement, exploring ideas, opinions heard, make choices, ideas mattered, academic success, optimism, identity development, make connections

“It just gives me more confidence in myself, what I can do.” CPR Student

When teaching Improvement Science, the PDSA process served as a foundational framework but the “ways of being” were also an integral part of the program. Ways of Being address the individual development and character of each student. As one teacher wrote regarding Ways of Being, “The PDSA process is just a simple tool; however, it is the language and culture around the tool that ignites the power within individuals and communities.”

- Helping others and service were strongly applied concepts. **20 out of 22 (90%) students reported they were moderately to extremely likely to help others.** This ability to make a difference was applied in multiple community and school projects.
- Students felt **high levels of excitement** for the program (90%). This enthusiasm was often expressed in relation to the **high levels of affirmation and encouragement students received** in the program. All students (100%) reported that they were moderately to extremely likely to have their opinions heard and 90% reported that they were moderately to extremely likely to feel that their ideas mattered.
- Most students felt they were treated as adults, not kids. They felt an increased sense of value in their knowledge, skills and capacity to make a difference. After meeting with a high level leader and learning that she had spoken about them with the Dalai Lama, one student reflected on this increased a sense of validation noting that, “[This experience]

makes me feel happy that we can change something in the world and that we can make a difference.”

- Optimism is one of the principal areas whereon “ways of being” centers. Responses from students showed that *18 out of 22 (82%) students were moderately to extremely likely to have a vision for their future.* However, when asked whether they *expect good things to happen to them, these numbers drop, particularly for graduated seniors. 5 out of 7 (71%) graduated seniors reported they were moderately to slightly unlikely to expect good things.*

4. Leadership/Teamwork

key words and related themes: listening to other ideas, respect, leadership, pillars of power, equity, equality, adapting, open-minded, tolerant, opportunity, inclusion

*“Everyone is important in the conversation.”
Student*

Many of the assignments and projects from the Improvement Science course and related programs were embedded in groups and community settings. Students worked together to develop school and community projects ranging from Hands-only CPR to lunchroom clean-up practices to sexism in the schools. 6th and 7th grade students were taught the principles of Improvement Science by older high school students.

- *20 out of 22 students (90%) reported they were moderately to extremely likely to listen to other people’s ideas.* One student who has graduated expressed it this way, *“I also had to teach myself to take a seat back and learn other people’s perspectives before even considering my own. And that quickly taught me to adopt other perspectives rather than reject or just completely accept them for what they were. And as I’ve continued to do that, I find that I actually relate with a lot of people on a lot of issues far more than I used to simply because I have a larger viewpoint.”*
- Most students discussed leadership principles that they were able to develop and use throughout the program. *19 out of 22 (86%) students felt they had opportunities to lead.*
- Many students reported a *heightened awareness of other people’s perceptions and capabilities.* An important aspect of their leadership was learning how to *adapt concepts for younger students.* (“Everyone can’t absorb things at the same level... So some things just need to be taught differently.” Graduate)

- Some students were mindful of how *each individual functioned as part of the whole* and strived to lead in a way that included and benefitted all parts “making sure that when you make these changes, that you’re involving everybody in a way that’ll benefit them, and not how you think you’ll benefit from it.”(Graduate) One graduated student also commented about finding his strength as a public speaker noting that, “I think finding your niche within your group of teammates is very very important.”

5. Strengths of Program

- One of the most common responses reflected how students appreciated the ***non-traditional approach to learning***. This included ***real world applications and improving the community*** or school. One 6th grade student noted that “We’re helping while we’re learning.” And another concluded that, “Taking what we learned and doing something with it was I really think that’s what made it so successful for us.” (Graduate)
- Students also were invigorated by leaders who ***incorporated student led ideas and passions***, commenting that, “It was a whole different way of thinking than what we learned in school” (Graduate) and that it felt “personalized.”
- The ***people*** students met and worked with were key factors leading to its success, none more so than Teal Van Lanen and Nick Cochart. One student described Teal as “a person that’s super huge” and another appreciated the efforts made by Nick Cochart, pointing out that “he moved mountains for us.” Students also mentioned their classroom teachers, Pete Knox and people whom they met at conferences.
- ***Conferences*** had a significant impact on almost all students who were interviewed. Based upon responses, this was largely due to the fact that students were able to leave their school environment and ***see new places and meet new people***. One student shared the following about attending a conference:

“I live in Wisconsin, a little town in Wisconsin so there is no diversity whatsoever. Everyone is the same and that’s all I’ve ever known. So when we went down there, there was so much diversity. We were in Florida. There were people from all over the world. And so this was just kind of mind blowing for me.” (Graduate)

6. Challenges

Though the Improvement Science class and associated programs were overall very successful, there were challenging aspects that students faced. These included the following:

- *Starting earlier* - many students wished that they had more time in the program and had started when they were younger
- *Readiness* - some students felt that a certain readiness and preparation was needed before beginning this program.
- *Busy schedules* - most of the older students in particular noted how difficult it was at times to fit everything in.
- Some students felt that *better communication* between leaders and the group and also between students should be taught and utilized
- *Graduates felt some disconnect* from the program and felt it was difficult to maintain connections after graduation
- Some of the older students felt there were *too many projects* at once and that they were unable to focus on their personal projects.
- Some students *disliked the kitchen space for meetings* and suggested finding a legitimate learning space

Discussion & Recommendations

As noted above, the results indicate that overall, students show a strong understanding and application of key concepts from the Improvement Science course and related projects. Most notably the concepts around skill building, failing forward, willingness to help others, leadership and teamwork stood out as particularly meaningful areas. Nearly every student expressed some degree of enthusiasm and support for this program. It had a profound impact in helping students realize their potential and capacity to influence the world around them by teaching them skills and concepts that enabled them to participate in meaningful school and community projects. Students were encouraged to apply their knowledge and ideas to problems they saw and cared about. The following comments illustrate some of the learning and impact on the students:

“They [adults at the conference] were thinking that we could actually – they thought we could actually make a change in how the society was.” (7th grade student)

“We didn’t know how we wanted to make this change or what exactly this change was. But we wanted to do something.” (Graduate, after attending a conference)

“Learning is about connecting it to different things and using it to make changes, not just so that you can spit words out on a test.” (Graduate)

In addition to responding to the challenges reviewed earlier in the report, the evaluation results point to several recommendations to be taken into account for future evaluations as well as suggestions to enhance and improve the Improvement Science course and related programs. These include:

- *Administering a pre- and post-test/survey for students taking the Improvement Science course and for a control group not enrolled in the course. This will help evaluate more specifically the extent of integration and understanding of key concepts.*
- *Compare results with other groups year to year*
- *Increase emphasis on implementation of PDSA in non-course related projects*
- *Increase emphasis on patience, asking for help and expecting good things to happen*
- *Provide opportunities for students to reflect on what they learned from failure and help them incorporate that knowledge into future plans*

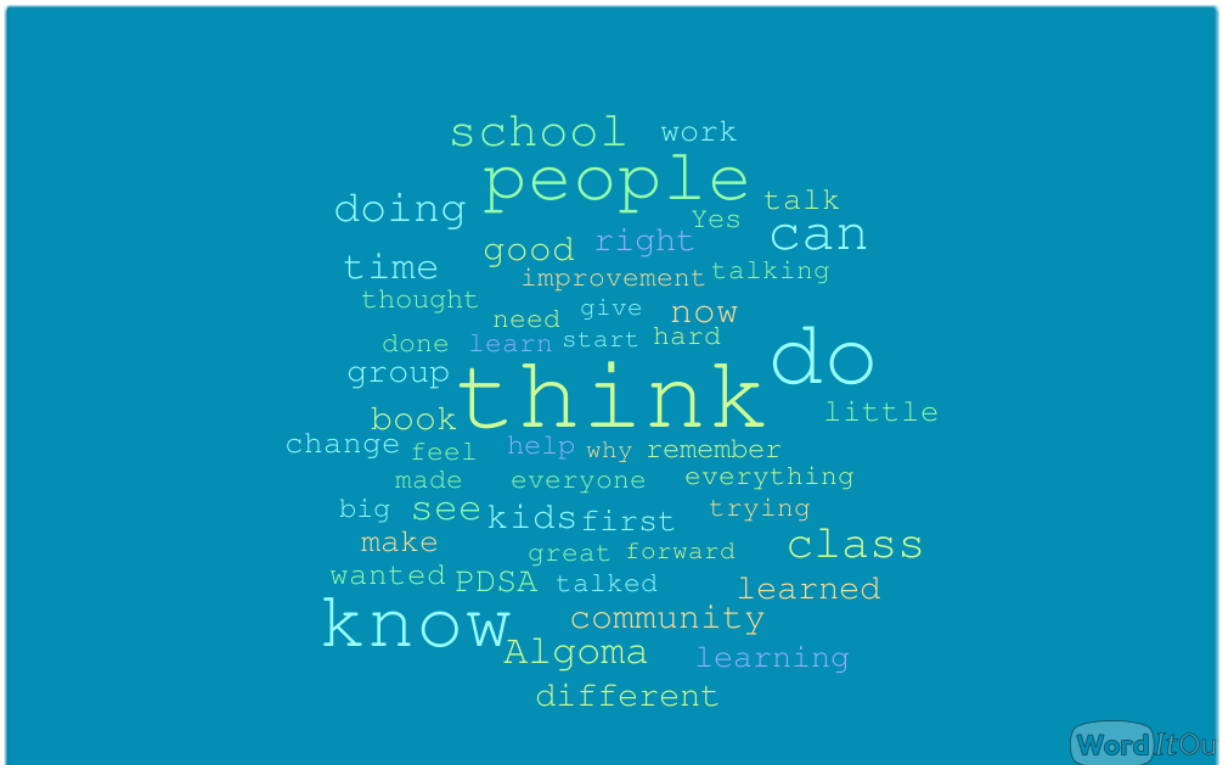
Research Supported by:



APPENDIX E
CLIENT REPORT-HIGHLIGHTS

“It’s possible to change the world...”

Students / Improvement Science / Shifting Perspectives



Main Question

This research focused on the student’s perspective and sought to answer the following question:

To what extent are key concepts learned by students in the Improvement Science course and related projects being applied?

Background

This project was undertaken to unpack and evaluate the students’ perspective of the Live Algoma-Improvement Science course/and associated projects during the 2015-2016 and 2016-17 school years. 22 students participated in this study.

Key Insights

In reviewing the data four key themes of the Improvement Science course and projects emerged. Each of these areas worked together to help students



Bright Spots

Students had an overwhelmingly positive response to the Improvement Science course and related projects. These four aspects contributed most to its success:

- Real world applications and opportunities to help the community.
- Students' ideas were heard and valued. Projects reflected their personal passions.
- Inspiring and talented teachers and leaders worked tirelessly to help students learn and develop.
- New places and new people. Students were deeply impacted by opportunities to present at conferences and learn from a diverse group of people.

improve their personal lives, their community and



their school and academic endeavors. The four themes are:

Strategic Tools: One of the main objectives of the Improvement Science course/program was to increase capacity building within the students to provide strategies to help them break down and work through projects, problems or other tasks. PDSA (Plan Do Study Act) was one of the main tools taught to and used with students. *Nearly all students*

"Before we did [PDSA] I would almost give up. But now after the PDSA, I figure that I can - if I try again, I will get it. If I don't get it again, I try again. And hopefully somewhere down the line, it will happen." 7th grade student

demonstrated a high level of understanding and application of these concepts.

"I think failing forward's a big one, just because everybody fails and...once you fail, you can't just be done and just hate your life because you failed that one time. But you should get back up and still try and make that change, and still try to work toward your goal." Graduate

Response to Challenges: Due to the inherent nature of challenges found in most aspects of life and work, the Improvement Science course/program worked to help students respond to challenges in more favorable ways and seek to view failure as an opportunity for growth and learning rather than a sign of

failure. *This was the most frequently discussed and referenced concept and an area where students saw a significant shift as a result of this program.*

Ways of Being/Self Efficacy: This aspect is at the heart of the Improvement Science course/program. As one teacher shared, "The PDSA process is just a simple

"It just gives me more confidence in myself, what I can do." CPR Student

tool; however, it is the language and culture around the tool that ignites the power within individuals and communities." *Students demonstrated high levels of enthusiasm for the*

program. It helped foster a desire to help others and supported them in creating a vision for their future.

Leadership/Teamwork: Many of the assignments and projects from the

"Everyone is important in the conversation." Student

Improvement Science course and related programs took place in groups and community settings. Students worked together to develop

school and community projects ranging from Hands-only CPR to lunchroom clean-up practices to sexism in the schools. 6th and 7th grade students were taught the principles of Improvement Science by older high school students. *Opportunities to teach and mentor others helped students learn to adapt these concepts for younger audiences and increased their ability to listen to ideas different from their own.*

Concluding Thoughts

Overall, students show a strong understanding and application of key concepts from the Improvement Science course and related projects. Most notably the concepts around skill building, failing forward, willingness to help others, leadership and teamwork stood out as particularly meaningful areas. It had a profound impact in helping students realize their potential and capacity to influence the world around them by teaching them skills and concepts that enabled them to participate in meaningful school and community projects.

**For more detailed information and recommendations, please see the full evaluation report*

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