WHAT ARE EFFECTIVE STRATEGIES TO SUPPORT STUDENT ENGAGEMENT
AND LEARNING?

By

Alissa M. Niemi

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By

Alissa M. Niemi

Has been approved for

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By

_____

Anita Lenges, Ph.D

Member for the Faculty

_____

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ABSTRACT

This paper looks at the problem of student disengagement, in addition to ways to help understand and support student engagement, by presenting an analysis of research revolving around effective teaching practices and strategies such as student choice in classroom activities, encouragement of self-efficacy, and collaborate, and cooperative models of teaching. Overall, the research presented revealed positive effects of such pedagogies on student engagement. Included are historical perspectives, as well as implications for teacher practice.

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CHAPTER ONE: INTRODUCTION

A joint statement by the American College Personnel Association (ACPA) and

the National Association for Student Personnel Administrators (NASPA) illustrated the

ideal student learning environment: "Student learning occurs best in communities that

value diversity, promote social responsibility, encourage discussion and debate, recognize

accomplishments, and foster a sense of belonging among their members" (Cabera et. al,

2002). If students are given the above conditions, it can be inferred that they will also be

engaged in their learning. However, in many cases, students are not provided an ideal

learning environment or effective teaching pedagogies to illicit academic engagement.

This lack of student engagement can look like any of the following: daydreaming, poor

academic scores, lack of participation, etc. Whatever the form, this paper seeks to

examine the problem of student disengagement and the many strategies aimed at solving

such problem.

There are many reasons for student disengagement. According to Goodlad

(2004), less the 1% of instructional time in high school is spent on classroom discussions,

which requires students to develop an opinion and/or use reasoning skills. Who in the

classroom are to blame: the teachers or the students? In his nation-wide study on the

impact of school, Goodlad discussed how teachers found themselves up against

unmotivated students. One teacher noted, "some of our classrooms are loaded with

youths who have no wish to be there, whose aim is not to learn but to escape from

learning" (p.12). Is this observation the result of teacher strategies or student motivation?

Again, the problem illustrated above is the problem of student disengagement. Rather

than playing the blame game, this paper examines two aspects of the problem of student

disengagement: teaching strategies and student self-efficacy, looking at both what the

teacher brings (teaching strategies) and what the student brings (self-efficacy) to the issue

of engagement. Ultimately, this paper asks the question: What are effective strategies to

support student engagement and learning?

Overview

      In her article about the high cost of disengaged pedagogies, Winn (2003) painted

a detailed picture of the problem of student disengagement:

> Field studies in large samples of secondary schools have revealed that teachers
>
> use a very restricted range of pedagogical options, and these are mainly the ones
>
> that require looking up answers and recalling information. There is little
>
> emphasis on the evaluation of knowledge or the promotion of intellectual
>
> curiosity, with most of the time available for discussion dominated by teacher
>
> talk. Left as passive (and bored) spectators, with little chance to evaluate the
>
> information presented or to make critical judgments, students turn off
>
> intellectually and simply go through the motions necessary to complete the course
>
> (p.1)

It can be interpreted from the above quote that many classrooms depict teacher-centered

practices that fail to provide students with such an ideal learning environment described

at the beginning of this section. Teacher-centered classrooms can be defined as

classrooms where the teacher is in constant control by both directing and instructing

student tasks, in comparison to student-centered classrooms that place some

responsibility of learning on the student and encourages self-monitoring. The research

presented in chapter three of this paper, in one way or another, attempted to either examine or solve the problem of student disengagement, and by doing so, shifted the focus of teacher-centered classrooms to more student-centered classrooms.

Examining this shift of teacher-centered classrooms to student-centered classrooms, in addition to the question of what strategies support student engagement and learning, this paper is organized in the following order: (1) highlights of historical perspectives around student-centered classrooms that helped shape the literature of today (2) review of research literature addressing the question: What are effective strategies to support student engagement and learning? (3) Summary of findings as well and implication for practical application.

It is next important to note that not all literature agrees with the current state of classrooms (teacher-centered vs. student-centered), or strategies that support student engagement. There were clear discrepancies when reviewing the literature presented in chapter three. For example, Beyer (1985) argued that teacher-centered classrooms remain omnipresent: "We are implicitly teaching dependence on authority, linear thinking, social apathy, passive involvement, and hands-off learning" (p. 50). On the other hand, authors like Hunt and Hunt (2005) and Holmes (1991) painted a different picture, arguing that many successful student-centered democratic practices are currently in action.

The research also shows discrepancies in the area of student choice, which is reflected as an effective strategy to support student engagement and learning in chapter three. Beyer (1989) stated, "central to this vision of a culture of 'democracy' is choice" (p. 179). Morgan & Streb (2003) argued that students must be involved in classroom

decision-making in order for them to become engaged in learning. They argued that the key factor in improving students' attitudes and behaviors is the level of student leadership in their own learning, which they referred to as 'student voice' (Morgan & Streb, 2003). However, Barry (1997) found no support for student choice in his research on student choice and achievement.

When researching effective strategies (in particular student choice) and engagement, the concept of self-efficacy continued to present itself. Many researchers argued the need for strong self-efficacy among students who made their own decisions (Bandura, 1977). Bandura (1986) saw people as embodying self-reverent beliefs and the ability to possess feelings that enable them to control their thoughts. His sociocognitive perspective argued that individuals are proactive and self-regulating, as opposed to reactive and controlled by outside forces. Therefore, this paper also considers the impact of self-efficacy as a strategy that supports student engagement and student learning.

With increasing diversity among students, much of contemporary literature recognizes pedagogical strategies that respect and utilize student differences. This paper further examines research surrounding diversity and the teaching strategies of cooperative and collaborative learning as strategies to support student engagement and learning. Research has shown that an overwhelming amount of studies supported cooperative learning and its positive effects on students (Ley, 1995). Laurillard (1993) came up with frameworks that embody four essential interactive processes for successful learning: discursive, adaptive, interactive, and reflective. Pilkington and Parker-Jones (1996) suggested the need for collaborative environments and for pairing students with similar roles to encourage reasoning. Bandura (1998) argued that cooperative learning structures

promote more positive self-evaluations of capability and higher academic attainments than do individualistic or competitive practices.

Like with student choice, the strategy of embracing student diversity falls claim to inconsistencies in literature. For example, Jencks (1973) concluded that school reform could not improve the cognitive inequality among students. Moreover, he argued that school approaches and practices had little to do with student attainment, and instead socioeconomic status and I.Q. played the major roles in learning. In other words, he argued that diversity of student performance was the result of forces outside of the classroom, not of pedagogical strategies (Goodlad, 2004).

Moreover, not all literature viewed cooperative learning as successful. Peterson (1998) argued that student and teacher preparation was necessary to achieve optimal results. He also argued that cooperative groups done well boosted academic achievement and improved a classroom's sense of community. On the other hand, if done poorly, cooperative groups could lead to a situation in which the highly motivated, more committed students did the work, and little learning took place for the rest of the students.

Clearly, not all research surrounding strategies to support student engagement and learning present the same findings. Therefore, it is important to note such discrepancies before presenting the literature in order for the reader to be presented with a critical review of literature surrounding the question: what are effective strategies to support student engagement and learning?

Next is a subsection that presents definitions to help clarify terminology presented in the title question, in addition to terms reoccurring in the body of the paper.

Definitions

This section defines terms embedded in the research question, what are effective strategies to support student engagement and learning? Terms are presented in bold, followed by their definitions.

Self-efficacy: (1) the feeling that one has the ability to succeed. (2) The beliefs individuals hold about their capabilities (Pajares, 2003). Self-efficacy influences task choice, effort, persistence and achievement (Schunk & Zimmerman, 1997).

Student engagement: Throughout this paper student engagement is referenced in various contexts. The concept of engagement can take on many forms, from a spark of interest to a completion of Kolb's learning cycle (active engagement, reflective observation, abstract conceptualization, concrete experience) (1984). Student engagement can also be seen as student achievement, as achievement demonstrates an effort that relies on engagement. All in all, however, defining engagement infers complete understanding of student interests and experiences, which is beyond the scope of this paper. Therefore, student engagement can be seen as an unquantifiable level of student interest and effort in learning.

Democratic classrooms: often associated with student-centered classrooms, democratic classrooms reflect the ideals of a democratic society such as respect for self and others, rights and responsibilities (Holmes, 1991). Some of the literature reviewed consolidated student-centered classrooms and effective strategies into the terms 'democratic practices.'

Democratic classroom practices: pedagogies that (1) follow democratic values (2) incorporate student voice and student decision-making (3) provide students with the

opportunities to participate in group work and to communicated and (4) help students inspire just action in their daily lives (Beyer, 1986).

Summary

The problem posed is the problem of student disengagement; the lack of student interest in learning. Goodlad (2004) argued, "Making schools relevant in the lives of boys and girls is one of the most demanding challenges we face" (p.29). Therefore, the remaining chapters examine strategies that have been debated throughout the educational community—such has incorporating student choice, the facilitation of cooperative and collaborative learning, embracing diversity and increasing student self-efficacy—that aim at increasing classroom relevancy in the lives of students and/or support their engagement in learning. Before exploring such contemporary literature, it is first necessary to begin with historical perspectives around effective strategies that support student engagement and learning.

CHAPTER TWO: HISTORICAL PERSPETIVES

Historically (1890-1980), public school instruction was primarily teacher-centered. Cuban (1984) defined this style of education as "occurring when 'teacher talk' dominates the classroom, instruction is primarily given to the whole class as opposed to small groups or individuals, the teacher determines the use of classroom time, and the classroom is arranged in rows" (Spring, 2005, p.275). At the beginning of the century, the physical layout of the classroom helped to determine patterns of instruction, as classrooms consisted of 40-60 students sitting in bolted down desks, which were positioned in rows facing the front of the classroom. This classroom layout was the norm between the 1890-1920, established by the architect for the New York Board of Education, C.B.J. Snyder (Spring, 2005).   Research showed, on the other hand, that student-centered classrooms, developed traits of individual choice and expression and occurred when student discussions were greater than teacher-talk, and students participated in educational decision-making. The student-centered classroom consisted of not only individual learning, but also group work (Spring, 2005).   Such style of teaching emerged in the mid 1900's and became prominent in the late 1960s with the advent open concept classrooms

Although cooperative and collaborative learning has existed in public schools throughout time, it is unclear when the pedagogical strategies emerged. However, ideologies surrounding cooperative learning have dated back to the 1920's, but studies on its application to the classroom started appearing in the 1970's with researchers such as Slavin, who argued that cooperative learning has also been shown to increase student

self-efficacy and build self-esteem (1991). Research by Johnson and Johnson (1975),

who some have argued pioneered the cooperative learning movement, showed that

cooperative learning—compared to individual and competitive learning—elicited more

frequent student experiences of discovery and used of high level reasoning. Specifically,

they saw the model of cooperative learning as structured around five key elements:

positive interdependence, individual accountability, group processing, face-to-face

interaction and cooperative skills.   Nevertheless, it is difficult to find literature dating

back to the ideological beginning of cooperative and collaborative learning

There is also an insufficient amount of literature addressing the history of student

self-efficacy and its effects on student engagement. Therefore, this chapter does not

speak to research conducted at the birth of cooperative and collaborative learning, and the

historical perspective of the effects of self-efficacy on student engagement. Rather, this

chapter is organized by first elaborating on the history of the democratic classroom,

which research has shown to increase student engagement, followed by addressing the

history of open-concept classrooms.

Democratic Classrooms

Democratic classroom strategies derived from a shift in the historical student/

teacher dichotomy. The linear movement of information from teacher to student was

substituted by student-centered activities that encouraged student decision-making, and

the role of teacher as facilitator (Spring, 2005). Cooperative learning and collaborative

pedagogies broke new ground for this progressive form of teaching. Such teaching

strategies evoked numerous democratic principles such as student choice, community, diversity, discussions, etc.

After World War II, student-centered democratic teaching strategies came under attack for supposedly causing the "deterioration of the academic standards considered necessary for winning the Cold War with the Soviet Union" (Spring, 2005, p.277). Advocates were accused of being communists and undermining the country's academic standards. As a result, major players in the student-centered reform became quiet and did not reemerge until the late 1960's with the growth of alternative schools and open-concept classrooms (Spring, 2005).

Open-Concept Classrooms

Depending on the research, there are many definitions of open-concept classrooms. Some defined the classrooms as those without walls, or having open enrollment, while others described open-concept classrooms as those that encouraged education based off student interests. For the sake of this paper, open-concept classrooms can be defined as schools that encouraged self-directed learning through individual growth. Muir (2005) saw open-concept schools as schools that directed their goals toward a community that consisted of students and teachers that conducted discussions, explorations, and investigations. He also described the teacher acting like a guide while each student worked at his or her own pace (Muir, 2005). Blackmon (1978) described the theory of open schools as children learning in different ways, and at different times, from things around them they found interesting. It is important to note that the term

open-concept schools do not necessarily imply students and teachers working together in one open space.

Open-concept schools were born in the late 1960s in England following WWII in response to help remedy the dichotomy of children educated on the countryside with those educated live-in teachers. The original goal of the English open-concept schools was to teach students of different educational levels within the same classroom (Rothenberg, 1989).

The history of research around open-concept schools is both vast and vague. Often researched in the light of traditional education, findings have shown attitudes towards open-concept schools, but not a direct comparison to traditional schools. Research has show that students attending open-concept schools viewed their education more positively (Muir, 2005). During his two years of observations in the 1970s, Rothenberg (1989) found that, although open-concept classrooms did not show achievement gains greater than traditional classroom, they did show achievement in creativity, self-concept, and attitudes toward school, compared to traditional classrooms. In addition, results have shown that open-concept classrooms improved students' cognitive engagement, but that such engagement depended on the implementation of the open-school concept (Blackmon, 1978).

<center>Summary</center>

Despite all the research and push for student-centered education, Goodlad (2004) argued that by the beginning of the 1980s, many doubted the public school's capacity to contribute to democratic ideals and some had real problems with schools "fostering

contact among diverse groups" (p. 10). Moreover, despite the push for more student-centered teaching strategies like open-concept classrooms, Spring argued that traditional teacher practices remained relatively constant. He saw the discrepancy between the roles of school (to manage behavior and learning) and the democratic underpinnings of student-centered classrooms learning (students directed in learning).

Because of the many forms of student engagement discussed in the Introduction, it is difficult to narrow the focus of student engagement over time. Rather, this section presented historical perspectives on strategies that helped support student engagement, which, in turn, helped shaped current research. The next chapter reviews contemporary research, starting with the impact of student choice and self-efficacy on student engagement.

CHAPTER THREE: CRITICAL REVIEW OF THE LITERATURE

Following the direction of such scholars as Dewey (1938) , Slavin (1983) and

Goodlad (1979), many of today's researchers have explored ways our democratic society

can manifest itself into the classroom to help engage students in learning. Chapter Three

begins by presenting research regarding the impacts of student choice on engagement.

Embedded in the concept of choice is the idea of self-efficacy; students own perception

of success. Much of the literature presented show that students' beliefs in their own

abilities influence their academic choices and their success in those choices. As a result,

a section examining the effects of student self-efficacy on engagement follows. Next,

this chapter shifts to examine the research surrounding classroom diversity, specifically

focusing on embracing student diversity as a strategy to engage students. The last section

looks at research on cooperative and collaborative learning strategies, and their effects on

student engagement.

The Impacts of Student Choice on Student Engagement

Student choice does not mean students have complete autonomy. Rather, it can

be defined has students having decision-making authority in such classroom norms as the

selection of materials, creation of assignments, classroom rules, assessments, etc. The

question of freedom is apparent in all the studies surrounding student choice. Important

questions to consider when reading this section: Are there guidelines fenced around

student choice? Did the students examined actually have free choice; that is, were there

limitations and restrictions to their choices? Did choice affect students' self-efficacy? Did

guidelines and limitations affect student self-efficacy, as well as their sense of ownership

and responsibility? Ultimately, did such guidelines and limitations affect implemented democratic practices and student engagement?

Several research studies around student choice and engagement argued that if students have the freedom to choose the material they study, they are more likely to be engaged in that material, resulting in higher student achievement, compared to if they had been assigned the material. Before critiquing such studies, however, it is first important to examine a study that found opposing results. Quantitative research by Barry (1997) found that choice did not effect student achievement, implying that choice did not effect student engagement.

A study using statewide data from a Kansas Writing Assessment (KWA) (Barry, 1997) allowed students to choose their writing prompt from a list, or generate their own writing prompt that fell within certain standards. The study looked at the elementary, middle, and high school levels. Specifically, it examined test results from 49,000 fifth graders, 36,000 eighth graders and ninth graders, and 23,000 tenth and twelfth graders, in addition to questionnaires collected from teachers and students. The focus of the study looked at the effects of choice on student writing performance—student choice of topic and teacher choice in terms of extent of engagement and amount of the time allowed for the writing process. The study described that 89-90% of students tested had a choice of writing topic. The Six-Trait Analytical Model was the assessment used as a scoring model. The six traits assessed were the following: ideas and content, organization, voice, sentence, fluency, word choice, and conventions. Each trait was rated on a five-point scale, five being the highest and one being the lowest. Therefore, all of the mean scores listed below are reflective of a five-point scale (Barry, 1997).

The mean performance levels for students with and without choice were similar (fifth grade: 3.12 (choice of topic) and 3.14 (no choice) eight grade: 3.18 (choice of topic) and 2.95 (no choice) tenth grade: 3.30 (choice of topic) and 3.21 (no choice)). The following is an example of choice topics for fifth grade students during the first year of the study: persuade a consumer to buy a product or service, solve a problem, write about an experience and the lesson it taught you, describe a favorite object, describe a relative, describe a time of event remembered, or choose your own topic. 28.8 percent of female fifth grade students chose to pick their own topic, resulting in a mean score of 3.04. 31 percent of males also chose to pick their own writing topic, resulting in a mean score of 2.89. Similar statistics are reflective in the following topics: time of event remembered, describe a relative, and describe a favorite place. The topic choice that asked the students to persuade Mr. John was the least topic chosen. The remaining four topics were either not chosen or chosen by too few students to make the data comparable to the other topic options.

The following is an example of choice topics for eighth and ninth grade students during the first year of the study: persuade a consumer to buy a product or service, describe a favorite object, write about an experience and the lesson it taught, explain and identify a fashion trend, write about misjudging someone, solve a problem, persuade Mr. John, write about a loss, describe a relative, or choose a topic. Similar to the fifth grade statistics, the majority of eighth and ninth grade students chose to create their own writing topic. 33 percent of female students chose to create their own topic, resulting in a mean score of 3.40. 40.9 percent of males also chose to create their own writing topic, resulting in a mean score of 3.14. The eight and ninth grade students had a wider range

of selection preferences compared to the fifth grade students. The next highest selected topic was to describe a relative, and the least selected topic was to explain and identify a fashion trend. The remaining were either topics not chosen or chosen by too few student to make the data comparable to the other topic options.

The majority of tenth through twelfth grade students of year one also preferred to choose their own topic (24% of females with a mean score of 3.44 and 31% of males with a mean score of 3.25). The next highest chosen topic was to write about a loss (28% of females with a mean score of 3.55 and 17% of males with a mean score of 3.25). Both year one and year two data demonstrate that, unlike fifth and eighth grade students, tenth through twelfth grade students had a large span of interests in writing topics. This is determined by only a couple writing topics not chosen, compared to three or more not chosen topics in the fifth and eighth grade data. Therefore, the study found that student patterns of choice for males and females were similar in fifth, eighth, and ninth grades, and significant differences in writing preference did not emerge with this sample until 10th, 11th, and 12th grades.

The results also showed that students did score higher on their writing assessment if the teacher had prepared them for her lessons (going over guidelines, writing styles, etc.). In addition, students scored higher if they were involved in a greater number of revision activities (teachers most frequently allowed three to five days for students to produce their best piece of work). Again, however, student choice did not affect achievement. Moreover, the study demonstrated that there were not significant differences in writing performance scores between males and females and various ethnic groups.

It is first important to consider if this study can be generalized to the greater population. The author argued that because the assessment was conducted with a cross section of the US population within Kansas (urban, rural, multicultural), the study has implications for assessment and instruction in writing beyond the state Kansas. Derived from data from the 2000 census, Table 1 compares the demographics of race and ethnicity between Kansas and the greater United States.

Race / Ethnicity	Kansas	USA
White Persons (a)	86.1%	75.1%
Black or African American persons (a)	5.7%	12.3%
American Indian and Alaska Native persons (a)	0.9%	0.9%
Asian persons (a)	1.7%	3.6%
Native Hawaiian and Other Pacific Islander (a)	Z	0.1%
Persons reporting some other race (a)	3.4%	5.5%
Persons reporting two or more races	2.1%	2.4%
White Persons, not of Hispanic/Latino origin	83.1%	69.1%
Persons of Hispanic or Latino origin (b)	7.0%	12.5%

*Table 1. Demographics
*Z = value greater than zero but less than half unit of measure shown
(a) Includes persons reporting only one race.
(b) Hispanics may be of any race, so also are included in applicable race categories.

Considering the differences in race and ethnicity of Kansas to the US, one might argue that the study cannot generalize. For example, the 2000 Census reported that Kansas has 86.1% white population, where the USA has 75.1% white population. This 11% difference may be significant enough to lead one to question the similarity of Kansas to the greater USA.

The quality and quantity of writing topic choices are also important considerations. Most students were given a choice of 10 writing topics (one of which was to choose their own topic that fits within given criteria). Was student choice not a factor in achievement because the questions were too close in comparison? Reading the choice topics above, one might also consider the excitement level of the questions. Some students might have found them limiting in imagination and creativity. For example, the writing topics given to the first year 5th grade students were mostly to describe something or someone (describe a relative, describe a favorite place, describe a favorite object). Perhaps the proposed topics were too similar in cognitive demand and, therefore, did not provide a large enough span and difference of topic to make choice significant. The cognitive function of description is the first level of Bloom's Taxonomy. Perhaps the writing prompts needed to span the six levels of Bloom's (knowledge, comprehension, application, analysis, synthesis and evaluation) for significant difference in topic. Simply having prior knowledge of a topic—experience with a loss when given the opportunity to write about a loss, or an experience solving a problem when give the opportunity to write about solving a problem—might not be the only determiner of achievement. It is also important to consider the cognitive level of the given topics.

Again, the study measured the immediate achievement of a student based on their score from the Six-Trait Analytical Model. What about achievement over time? Does the element of choice give students a new perspective on academia and the learning process, resulting in future engagement? For example, the idea of actually choosing a writing topic might have been foreign and intimidating to many students; however, if those student became accustomed to such assignments, they might have formed new schema

around the idea of choosing their own writing topics, possibly resulting in longer-term

higher achievement. It is important to consider not only the immediate results of this

study, but also the long-term psychological affects of the study presents.

Moreover, from a sociocultural perspective, the element of choice in this study is

not free choice. That is, throughout their education students are raised to know what is an

acceptable choice within a given context. It is possible that students need to be taught

how to freely choose. Without a genuine choice students might not feel ownership over

their choice and, as a result, may not be as engaged in comparison to if they had freedom.

The most significant critique of this study is the 'choose your own topic' option.

Nowhere in the study does the author list the criteria a student must follow when

choosing his or her own topic. If the criteria for choosing one's own topic were similar to

the other topic options mentioned above, then clearly choice would not be a significant

determiner of student achievement. Moreover, it seems that students were given a choice

regardless of their decision, as they either picked a paper topic or made up their own

topic. As a result, it is difficult to support the author's conclusion because the study

failed to incorporate a control group of student who were given no choice. Therefore, it

is important to reflect on if the author's conclusion is congruent with the study's findings.

His conclusion that student choice was not a significant determiner of student

engagement and achievement—as he found no major differences in writing scores

between students who chose a topic from a list and those who came up with their own

topic—may be questionable when considering the quality, quantity and variation of the

writing topics.

Like mentioned earlier, most studies examining student choice and engagement argued that students are more engaged when they are given a choice, though the definition of choice may vary between studies. Similar to Barry (1997), Flowerday and Schraw (2003) quantitatively researched student choice and engagement. They asked the question: what are the effects of choice on cognitive engagement (task performance) and emotional engagement. They argued that allowing students to make choices within a context of instruction was an effective motivational tool. They also argued that there are issues surrounding the specific ways to use choice, how much choice to allow, and with whom choice will create the greatest benefit.

Before conducting their experiments, Flowerday and Schraw (2003) constructed two theory-driven hypotheses about choice: 1. The enhanced cognitive engagement (ECE) hypothesis, which hypothesized that choice increases cognitive engagement and learning. 2. The enhanced affective engagement (EAC), which hypothesized that choice increases positive effect with regard to attitude, satisfaction, and effort.

The study consisted of two experiments. The first experiment looked at the impact of choosing between two different tasks: writing an essay or solving a crossword puzzle, or being assigned one of the previous tasks, all after reading a 900-word story. Given the ECE hypothesis, students should enhance their scores on their assignment of choice because of their greater autonomy in the decision. The second experiment examined differences between a self-paced and researcher-paced study session. Considering the EAC hypothesis, students should process information better because of their sense of autonomy and intrinsic motivation.

The experiments consisted of eighty-four college undergraduates (46 women, 38 men) who participated as part of their course requirement (Flowerday and Schraw, 2003). This quasi-experimental design included task condition (essay, crossword puzzle) and choice condition (choice, no choice). The texts the students read consisted of a fictional narrative titled *The Book of Sand* by Jorge Luis Borges (1977). Written essays were completed after a questionnaire was distributed. The authors and trained research assistants scored the essays by grouping responses into three categories: thematic, critical, and personal (with 13 subcategories). The essays were scored using 10-item interest scale to measure the student's interests after reading the text (Schraw, Bruning, and Svoboda, 1995), in addition to The Desire-for-Control Scale, which included 13 items developed by Wise, Ross, Leland, Oats, and McCrann (1996). The Scale measured the degree individuals wanted control in a testing situation. The researchers also measured the students' holistic text interpretation from a nine-level scale that evaluated overall interpretive meaning.

The crossword puzzle, on the other hand, was taken from a previous edition of the university newspaper. None of the students reported seeing the crossword previously. The researcher noted that they chose a crossword puzzle because it is a legitimate alternative to the essay task and that choice is most beneficial when students are asked to choose between two tasks that are perceived as equivalent options. It is important to note that the authors were not comparing the performance on the essay compared to crossword tasks, but rather conducting two separate analyses of the difference between the choice and no-choice groups on each task when students were allowed or not allowed to choose between to different tasks. The comparison of students in experiment 1 who chose the

essay (n=24) and the crossword puzzle (n=18) reveled that both tasks were equally appealing (Flowerday & Schraw, 2003).

Several sets of analyses where conducted after students completed either the essay or crossword puzzle, in addition to the questionnaires. Data set 1 compared the desire for control and interest outcomes of the four groups. Set 2 compared essay responses between two groups (students who chose to write the essay verses students who did not choose the essay). Set 3 compared the crossword puzzle (those who chose the crossword and those who did not). Set 4 compared the ratings on the 12-item attitude checklist among all four groups (all tests were p <. 05) (Flowerday & Schraw, 2003).

Experiment one set analysis.	Results
Set 1: Desire for control and interest in the items	Means for the essay and crossword no-choice conditions did not differ, but means in choice condition differed significantly. Participants indicating less interest in the story were more likely to choose the crossword puzzle task rather than the essay.
Set 2: Essay responses (choice versus no-choice)	Marginal effect for relating information in the story to personal events in one's life, $t(43)= 1.96$, $p=.05$
Set 3: score on crossword puzzle (choice versus no-choice)	The difference between the means of the choice and no-choice groups taking the crossword puzzle was not significant
Set 4: Attitude	1. Students in the essay group significantly tried harder than those in the crossword puzzle group, which was most likely caused by students picking the crossword because they were less interested in the story. 2. Students in the choice group scored significantly higher than students in the no-choice group. 3. Students in the no-choice group worked longer than students in the choice group. 4. Students in the choice group reported having more control than students in the no-choice group.

*Table 2. Summary of Set Analysis and Results, Flowerday & Schraw (2003).

Therefore, Experiment 1 found that a) individual interests had an impact when presented with a choice, b) choice did not improve cognitive engagement, c) choice had

positive impact on affective engagement, and d) students who were not given a choice tended to work harder, but were less interested in the story (Flowerday & Schraw, 2003).

The second experiment was conducted after the researchers' findings that the choice group reported less effort. As a result, Experiment 2 looked at how much effort students chose to expend; how long they studied. Similarly, the researchers used a 2-group design where one group was self-paced and the other was researcher paced. As mentioned earlier, the ECE hypothesis predicted deeper learning and better performance on cognitive tasks (which in this case were essay and multiple choice test) in the self-paced group, and the EAE hypothesis predicted that positive differences in attitude, interest, and effort will be evident for the self-paced (choice) group (Flowerday & Schraw, 2003).

The researchers gave students 45 minutes to complete their booklets. If they chose to self-pace, on the other hand, they could finish anytime within one hour. The results of Experiment 2 produced two main findings: (1) self-pacing lead to substantially less study time compared to researcher pacing. (2) choice (self-pacing) had a negative impact on critical thinking; students mostly failed to make thematic inferences and holistic interpretation of the text. Therefore, the findings do not support the ECE hypothesis. In addition, as predicted by Flowerday and Schraw (2003), the results of Experiment 2 showed an increase in affective engagement even with no increase or even a decrease in cognitive processing.

Unlike Barry (1997), Flowerday and Schraw (2003) found support for short-term choice increasing positive affect response (EAE hypothesis). However, like Barry (1997) they found no evidence to support that choice increased or deepened cognitive

engagement or task performance. To better examine the effects of choice on cognitive engagement (task performance) and affective engagement, the researchers could have looked at student perception; in particular, their perception of intrinsic motivation. Moreover, like suggested for Barry's research on choice, the authors could have examined short- versus long-term choice. Perhaps a long-term examination of choice would reveal deeper cognitive processing. In addition, both men and women in Experiment 1 and Experiment 2 were undergraduates in college. How would choice influence engagement of younger students, in particular middle school and high school students? How did their age differences influence their perceptions of choice and strictness surrounding educational freedom?

It is also important to consider the cultural diversity of the participants in the study (Flowerday & Schraw, 2003). Did they come from particular cultures where choice is not common; in other words, did they not have set schema or prior experiences with choice in education? Did they feel uncomfortable with taking ownership of choice that would usually be the designated to authority figures? In addition to other cultures, it is important to consider the needs and prior knowledge and experiences of Asian Pacific American students who might be uncomfortable taking on such an authoritative educational role (Pang & Cheng, 1997).

In addition, it is also important to consider the participants' prior knowledge with the artifacts (essay and crossword puzzle), as well as the fictional story the participants were asked to read. What perspective is the story written from (male/female, culture, ethnicity, cognitive level)? These details should be present in the study, along with students' attitudes about the artifacts and choice. This angle of analysis may give insight

to why students expressing less interest in the story were more likely to choose the crossword puzzle rather than the essay (Flowerday & Schraw, 2003).

Choice can also be seen as embodying other elements such as diversity, self-efficacy, and responsibility. When students are given the opportunity to choose how and what they learn, they might be more able to reflect their unique selves, increasing confidence and ownership in their learning abilities. In a research study that looked at inner-city African American middle-school students and teaching strategies that positively influenced student engagement, Teel, Debruin-Parecki and Covington (1998) conducted a case study with the goal of documenting the impact of alternative teaching strategies. The specific strategies they looked at were (1) effort-based grading (2) multiple performance opportunities (3) increased student responsibility and choice. They asked the question: In what ways would the above alternative teaching strategies have a positive impact on students' motivation over the course of each year of a two year study (Teel et. al., 1998)? Before unpacking the study, it is first necessary to look at the authors' framework for research.

Following Haynes and Corner (1990), Teel et. al. (1998) started with the knowledge that African-American students do not have the same academic success rate as their Caucasian counterparts. This knowledge is important to this paper because much of the research reviewed does not take into account multiple ethnicities. As stated in Teel et. al., The US Census provided the following statistics from 1995 to support their claim: 73.8% of African-Americans ages 25 and older had earned their high school diploma compared to 83% of Caucasian population. 13.2% had earned a college degree, compared to 24 % of Caucasian (US Census and Bureau of Labor Statistics, 1997). Teel

et. al. asked the question: what alternative teaching strategies elicit positive student responses in low-income, African American youth.

Teel et. al. (1998) designed their study to provide students with a sense of ownership and responsibility in their learning in an effort to increase academic engagement. The authors (Teel et. al., 1998) focused on the following alternative teaching strategies during their case study: (1) effort-based grading (2) multiple performance opportunities (3) increased student responsibility and choice (4) validation of cultural heritage (Teel et al.).

The two-year classroom study consisted of two cohorts of seventh grade students in a World History Class (Teel et al.,1998). The demographics of the first cohort (23 students) in the first year of the study were as follows: African-American (18 (78%)), Asian (2), Caucasian (2), Latino (1). The demographics of the second cohort (29 students) were as follows: African-American (24 (82%)), Asian (3), Latino (2).

The focal students of this study fit the following criteria: (1) African-American (2) low-income (3) academically at risk (Teel et al., 1998).   The primary method of data was student interviews and questionnaires, which accounted student voices and experiences such as narrative inquiry by means of interviews, questionnaires, and/or written documentation. In addition, data was not only collected each year from researchers, but also collected from the teacher in the form of journal writings that detailed classroom experiences (content covered, student participation with a focus African-American students).

The authors' methods were analyzing data from a massive case study. Teel et. al. (1998) looked for repeated positive student responses relating to the four alternative

teaching strategies mentioned above. The researchers' case study (two-year period), consisted of a close analysis of day-to-day classroom routines. In addition, Teel et. al. (1998) provided multiple accounts (focused on many students) and a variety of data collection (three perspectives (student, teacher, observer) and triangulation of data).   A strategy was determined successful if the majority of the students in the classroom were enthusiastic, engaged and learned, and if positive responses to the strategies were indicated in student interviews and questionnaires (Teel et al., 1998). Table 3 outlines the criteria used to determine student responses.

Effort-Based grading	- Frequency and quality of participation in discussions - Level of effort on individual assignments - Effect of improved grades on sense of academic potential (self-efficacy)
Multiple performance opportunities	- Interest in lessons - Willingness to demonstrate previously unrecognized talents and strengths.
Increased student responsibility and choice	- Willingness to assist in classroom - Responses to choice
Validation of cultural heritage	- Time on task during sustained silent multicultural reading program - Volunteering for book talks on choice culturally relevant materials - Student engagement in discussions about cultural issues

*Table 3. Criteria Used in Questionnaires and Interviews, Teel et al (1998).

The researchers found numerous positive student responses to the alternative teaching strategies. Specifically, when looking at the affects of choice on engagement, Teel et al. (1998) discovered that when students were allowed to choose their own books,

projects, and/or assignments they took their work more seriously. One of the students during year one commented during an interview: "You probably can do something better if you draw a picture or a skit or talk about it. If you have a choice, then you really want to do it and you can express yourself more in what you are trying to do" (p. 490). Moreover, the teacher wrote the following comments in her journal regarding choice, "I am enjoying this class more and more and I am very excited about the reading program. The students seem motivated to read when they can choose their own book and go at their own pace" (p. 490). The authors noted that during both years the student nearly unanimously indicated that when they had choices they were more willing to work harder (Teel et al., 1998).

However, it is also important to note that not all students responded well when given a choice in their education. Some students could not decide when given choices and, as a result, worked on something else entirely and eventually became disruptive to other students. The teacher/researchers decided to randomly modify assignments by varying types of assignments required compared to providing choices in every assignment (Teel et al., 1998). Though not specific in their details about when choice was or was not given, one can infer that choice engaged some students, but not others.

Diversity and the validation of cultural heritage is another relevant theme that one can glean from Teel et. al. (1998). Diversifying classroom curriculum outside of stereotypical Eurocentric content was shown to engage students that might not otherwise be engaged. One student noted frustration in an interview, commenting that the school books failed to discuss his or her culture: 'cause they probably have like our people don't do nothing if they don't know nothing about their selves. They probably say Black

people can't do nothing anyway, so why should I try to do something' (p. 491). During volunteer book talks, data showed that the African-American students appeared to be very proud to talk about stories from their own culture (Teel et. al., 1998). Students also engaged in discussions around culturally relevant issues, and the researchers and teacher noted in their journals that more students participated with enthusiasm during discussions that were relevant to their own lives (Teel et. al., 1998). Interviews and questionnaires indicated the Caucasian teacher and African-American students had the ability to participate in a democratic process of discussion despite differences. In other words, the majority of African-American students indicated a sense of validation and appreciation for a teacher of a different racial background who was willing to listen and accept their feelings (Teel et al., 1998).

Ultimately, the researchers (Teel et al., 1998) concluded with arguing their success of implementing alternative teaching strategies. The study stated, "Our experiences with both cohorts of students during our two year study indicated that given certain classroom conditions in which teaching strategies were used that addressed diverse student interest, talents and strengths, students at risk for school failure became just as engaged and motivated in a positive way as more 'high achieving' students" (p. 492). Moreover, they generalized their educational implications to the greater population and argued that their study concluded: the use of diverse curriculum and grading strategies, in addition to culturally relevant experiences in teaching world history, promoted and increased student interest in the class and their academic self-confidence (Teel et al., 1998). Interestingly enough, the authors chose not to generalize the strategy

of choice and responsibility, most likely because of the varying results from student to student.

Critiquing the study brings about many unanswered questions and concerns. For example, the vice-principal chose African-American student participants, but the study failed to report how the vice-principal chose those students. As mentioned above, the vice principal was given certain criteria, but did he or she have prior personal relationships with the students? What were the administrator's personal biases? Such questions affect the results because, for example, if the vice-principal chose charismatic and loquacious students the results might have been different if, in comparison, he or she had chosen quiet and reserved students. Moreover, in spite of triangulating their data, the researchers relied highly on their own observations. Most of their criteria for student engagement were visual, verbal, and/or physical. It is important to consider that some students may be engaged cognitively, but not demonstrate enthusiasm. Despite race and culture, not all students are extroverted and outwardly display their feelings. It is also possible that there were varying dynamics at play within the classroom that resulted in individual student introversion such as student clicks, sensitive material, concerns exterior of the classroom, etc.

There are other variables to consider beyond the student participation and enthusiasm. Teaching strategies are not the only variable that contributes to students' success. For example, school facilities, district funding, community members, social dynamics, etc. all impact student engagement. Therefore, it is important to consider a variety of variables that contribute to student engagement, in addition to how those variables affect alternative teaching strategies. Moreover, the authors (Teel et. al., 1998)

consistently discussed the importance of student choice and student responsibility in learning, while also considering that not all students are socialized to appreciate and excel in the face of choice. However, they failed in describing the extent of choice and *why* some students handled choice differently. What was the extent of student choice? How much freedom did they have, if any? All are important questions to consider when examining the effects of student choice on engagement.

Hypothesizing that students who participated in service-learning projects, which include student choice, were more engaged in the classroom and neighborhood communities, Melchior (1998) conducted a large-scale three-year evaluation on the influence of service learning on engagement through the method of survey. The participants included 220 randomly selected high school students from 19 different classrooms (10 schools) and five states. The study was conducted over an entire school year. 76% of the participants were female and 17% were African-American and only three percent Asian or Pacific Islander. A survey was given both before and after the students' service projects. The projects were at the discretion of the participants, but they all had goals in the following areas: community impact, student learning, and student development. For example, some projects dealt with community homelessness while others focused on pollution or illiteracy (Melchior, 1998).

Measuring the impacts of the Learn and Serve programs through student surveys, Melchior (1998) looked at participant attitudes and behaviors, community response and institutionalization of service learning at the participating schools. Melchior found that while the impacts on participants tended to weaken after the initial year of participation,

those students who continued their involvement in organized service actually did demonstrate long-term positive effects.

Ultimately, Melchior (1998) found from the post-program a decline in overall students' English grades, but an increase in overall science grades, concluding that service learning did not distract students from their school work and did not have a negative impact on student engagement. Therefore, the follow-up analysis indicated that service learning was likely to provide a small benefit or (at worst) have little negative impact on student engagement (Melchior, 1998).

Critiquing Melchior's study (1998) it is important to consider the inconsistency of service learning; that is, the length of student projects. Melchior mentioned that the projects demanded less than a few hours/week. Can such a short period of time elicit student engagement in school, overall? Moreover, the study only selected 'high quality' service-learning programs. What were the qualifications for being 'high quality?' Did such qualifications discriminate? For example, the majority of the participants were White and female. What were the socio-economic status of the communities and schools studied? Such data would help determine the generalizability of the study. Another questionable detail about the study was Melchoir's use of student grades as a determiner of engagement. Students may have been engaged in various ways that were not demonstrated in grades. Lastly, 31 percent of the sample was lost over the course of the study (absences and incomplete 2nd surveys). Considering the large size of this study, it is doubtful that such incompleteness caused major alterations of data. Regardless, it might be interesting to bear in mind why such individuals failed to participate.

Specifically responding to Melchoir's study (1998) Morgan and Streb (2003) conducted a study that examined the 'student voice' in the Learn and Serve America School and Community-Based Programs. They asked the question: what are the effects of service-learning projects on classroom engagement?

Morgan and Streb (2003) gave participants a survey both before and after their service-learning projects, in order to see the effects of the projects on student engagement. The questionnaire asked participants to rate the following statements on a four-point Likert scale (strongly disagree to strongly agree):

1. "I had real responsibilities."

2. "I had challenging tasks."

3. "I helped plan the project."

4. "I made important decisions."

In addition, they analyzed the affects of the service-learning project on the following dependent variables:

1. Whether the student discussed school with others outside of class

2. Political knowledge

3. Personal competence

4. Number of school days the respondent had skipped

Morgan & Streb (2003) hypothesized that when 'student voice' increased, the above dependent variables should also increase (except #4). However, all of the dependent variables in the study showed little change between the pre-survey and post-survey, which they argued indicated that service-learning projects did not have the intended results. However, when student voice was taken into consideration, the results

differed, showing student voice significant in each dependent variable (p < .001 and p < .01).

As a result, Morgan and Streb (2003) concluded that students needed to help plan their service learning projects in order for them to be able to positively engage in the project. Ultimately, their research revealed that distinct differences in civic education when students were given a significant voice in the project versus when they were not, and that students with positive service-learning experiences were more engaged in school. As a result, they argued that mandating service projects could potentially backfire if students were not given opportunity to have a significant voice in their projects (Morgan & Streb, 2003).

Rather than using grades as an indicator of engagement, Morgan & Streb (2003) relied on students' self-reported voices as the independent variable. However when critiquing the study, student voice clearly could not be the only factor that determined the impact of service learning. It is important to consider age of students when giving them responsibility and choice. When are students cognitively able to make key decisions in their individual learning process? What age can students (if any) move from choice that fulfills their individual immediate interests to choice that sustains long-term interests and goals? The above questions are important considerations, not just for Russo and Warren's (1999) study on service learning, but also for all studies dealing with choice and engagement.

The previous studies examined the effects of student choice on student engagement. Student choice can be seen as a strategy, and student engagement as the studied outcome. Barry showed that student choice in writing prompts did not effect

student engagement (1997). However, an overwhelmingly amount of research showed that students were more engaged if given choices in their education. This section is important to this paper because it presents a variety of studies examining student choice as a strategy to support student engagement, in addition to incorporating studies that focus on multiple ethnicities and cultures.

Self-efficacy and Student Engagement

The following studies looked at student self-efficacy and its effects on student engagement. Fencl and Scheel (2004) and Baldwin, Ebert, and Burns (1999) found that certain teacher practice such as cooperative learning positively contributed to the self-efficacy of students (Fencl & Burns, 2004). Moreover, Maslow (1970) argued that democratic principles such as choice and responsibility increase student self-esteem and assist in their social and personal development (Holmes, 1991).

Like mentioned in Teel's et. al. study (1998) on African American youth and motivational teaching strategies, underlying the concept of student choice is students' perceptions of their ability to successfully carry out and complete their choice tasks. Research has shown that a strong sense of self-efficacy enhances student engagement and encourages achievement both in and out of the classroom. Bandura (1994) defined self-efficacy as the following: "the belief in one's capabilities to organize and execute the course of action required to manage prospective situations" (http://www.des.emory.edu/mfp/efficacy.html). It is next important to consider: what strategies increase student self-efficacy and, in turn, support student engagement?

Below are examinations of research that studied the effects of self-efficacy on student engagement and learning environments. They all demonstrate the impact of positive student self-efficacy on students' sense of ownership, as well as the impact of students' learning environments on student self-efficacy.

Examining the strategy of problem-based learning and student self-efficacy. Laird, Engberg, and Hurtado (2005) asked the question: what are the effects of problem-based learning on middle school students' self-efficacy? Specifically, they stated their questions as the following (Liu et al., 2006): (1) is there a relationship between students' science self-efficacy beliefs and their attitude toward science after they engaged in a computer-enhanced PBL environment?" (2) How do students' science self-efficacy beliefs and their attitude toward science relate to their science achievement after they engaged in a computer-enhanced PBL environment?" (p.229)

They defined problem-based learning as a process where the teacher presents students with a problem and they are asked to find a solution(s) to that problem by way of reasoning, questioning, researching, and critically thinking (Liu et al., 2006). Briefly stated, the authors supported Bandura's definition of self-efficacy (1986,1997) by adding that self-efficacy refers to and individual's belief about his or her capabilities to successfully perform a task at a given level.

The participants were 549 sixth-graders from two middles schools. They participated in the study for over three-weeks in the second semester of the school year. The schools were in the same district with similar demographics: 16% Hispanic, 6% African-American, 73% Caucasian and 5% other. Additionally, 271 of the participants

were female (49.3%) and 412 students were in regular educational classes (75 %), 82

students were in Talented and Gifted classes, and 55 were special needs.

The participants completed both pre and post test and were taught by five teachers that

participated in training workshops before executing the lessons. The teachers' roles were

that of facilitating and they never directly taught students.

The computer-enhanced PBL lessons were designed to engage 6th grade students

in complex tasks, which required them to use problem solving skills (mentioned above)

and their knowledge about the solar system. The model first described a problem and

then presented the students with their task(s). The students used the computer-based

model titled *Alien Rescue* in their daily 45-minute class for 15 days.

The students were assigned to groups of two or three to collaboratively solve the

problem; however, they each had their own computer.

Both quantitative and qualitative data were collected. The data is described

below. The first three bullet points represent data collected from the students both prior

and after the *Alien Rescue* PBL:

- Achievement test: specifically designed to measure students' knowledge of
  concepts in *Alien Rescue*, the test contained 25 questions that addressed both facts
  and application.

- Self-efficacy questionnaire: students' self-efficacy beliefs were measured from
  the Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, and
  McKeachie, 1993). The eight items in the questionnaire dealt with students' self-
  efficacy for learning and performance. Students rated themselves on a 5-point
  Likert scale (1= not at all true of me, and 5= very true of me). The authors

replace the words "science class" for "course," so their results were specific to their study.

- Attitude toward science questionnaire: students' attitude toward science was measured using the Attitude Toward Science in School Assessment (Germann, 1988). Students answered 14 questions on a Likert scale (1= strongly disagree, and 5= strongly agree).

- Open-ended questions and interviews: After completing the computer-based PBL assignment, students were asked to answer three open-ended questions—both individually and in their groups.

Eventually, patterns from the data was collected and sorted into categories and sub-categories to generate themes.

The study found an increase in students' science achievement and self-efficacy for learning science after their engagement in a computer-enhanced PBL learning environment (p <.001). The study also found that group work—when students were divided up by the median split in self-efficacy scores—group work interactions increased. Moreover, the qualitative data found that the sixth-graders learned and liked science and were more confident after completing *Alien Rescue*. One student commented, 'it boosts my creativity, makes me want to know more because I know I can find more information' (p.239).

A particular strength of the study is that the authors did not generalize to the education public; they tested in the field of science and their suggestions remained pertinent to the field of science (Liu et al., 2006). However, they did generalize to all students studying science. The majority of the students tested were White and from same

school district with the same socioeconomic background. The authors did gather students with diverse learning abilities (gifted, students with special needs, etc.), however they did not consider all learning abilities.

Liu et al. (2006) indicated that their results demonstrated the relationship between self-efficacy and achievement, and that students' self-efficacy towards science learning could be used to predict achievement. However, the authors failed to define achievement, as well as elaborate on individual assessments (other than the surveys mentioned above). It is difficult to conclude such a relationship without testing students individually.

Considering the computer program used, the problem and task description revolved around solving a problem about aliens. Rather than the computer-based PBL being the catalyst for student engagement, could the fact that student watched and read about aliens have impacted their interest in the assignment rather than simply the PBL lesson and, therefore, increased their engagement? Moreover, the authors noted that at four points throughout the visual PBL, and expert is available to assist students and probe their learning. Did this affect their self-efficacy, knowing that they have assistance?

It is also important to consider if the students involved already had a positive self-efficacy and positive attitude toward science. After all, there was no control group. With no control group it is difficult to fully see the affects of PBL and self-efficacy. Moreover, how were groups chosen? Did the teacher go over group work skills? These questions are important to consider when considering democratic classrooms strategies and student engagement. This research was conducted as part of a curriculum. Would the results have changed if the study had been in more of a research setting with a control group?

In addition, would students' attitudes and/or self-efficacy change over time? *Alien Rescue* was a new addition to the curriculum. It is important to consider if students' self-efficacy would be affected if they participated in more than one PBL lesson.

Also studying problem-based learning (PBL) and its effects on student engagement, Bragg (2005) asked the question: does problem-based learning increase student engagement and motivation? He defined PBL as curricula focused on relevant ill-structured problems, which are presented to students to solve. The study focused on motivation through the determinant of on-task behavior. Although the study did not specifically look at self-efficacy, it is important to this paper because it presents an alternative study of PBL and student engagement.

Bragg (2005) observed six biology classes taught by two experiences teachers. He observed a total of four honors classes, two regular classes, and 150 total students. Classes were randomly assigned to PBL or traditional lessons. Throughout the observations, students worked in groups with the researcher observed to quantify student time on-task, off-task, or completed the work. In addition, six students were interviewed to further examine engagement.

Research found no significant difference between PBL and traditional classes for males ($p > 0.05$) or between females ($p > 0.05$). Overall, research found no difference between traditional and PBL classes in student engagement and motivation. Such findings, however, are not without critique (Bragg, 2005).

First of all, it is important to consider the subject and content researched. Bragg (2005) observed biology classes studying the carnivorous behavior of *Photuris* fireflies. However, his research question generalized to all content areas. Such discrepancy could

have implications on the research, as engagement might look different across disciplines. Moreover, Bragg explained that he noted on-task, off-task, and completed the work, but failed to specify what these classifications looked like. Without such clarifications, it is difficult to give credit to the research and its findings. Lastly, Bragg noted that the teachers had previous experience with PBL, but that not of the students had previous experience. Without prior exposure and experience to PBL, it might have been difficult for students to know what was considered on or off-task.

As Liu et al. (2006) and Bragg (2005) looked at PBL and student engagement, Caraway, Tucker, Reinke, and Hall (2003) examined the strategy of increasing student self-efficacy in the light of goal orientation. They asked the question: what are the effects of self-efficacy and goal orientation on student engagement? Caraway et al. (2003) measured engagement by grade point average, number of school absences, and the engagement subscale of the Rochester Assessment Package for Students. The study examined the association of the following variables with school engagement: self-efficacy, goal orientation, and fear of failure.

The participants consisted of 206 high school students (9th-12th grades) that were recruited during study hall. 60% of the students (123) returned completed questionnaires and signed consent forms. 49.6% of the participants were male (61), and 50.4 % were female (62). 65% of the students were White, 24% were African-American, and 4% were Latino and 7% Asian. The below bullet points elaborate on the data collected (Caraway et al., 2003).

- Demographic/Academic Data Sheet: obtained information about the participants' age, gender, and race. In addition, the questionnaire asked questions around

school engagement in English, math and science. Grade point average was used as an indicator of school engagement.

- Self-Efficacy Scale: this questionnaire was a self-report measure of self-efficacy. The scale contained 23 items, and the participants were asked to rate those items on a 14-point Likert type scale (1= strongly disagree, and 14= strongly agree).

- Goal Orientation Scale: consisted of a 15-item self-report that measured the tendency to set goals and make plans in everyday life. Participants were asked to rate their items on a 5-point Likert-type scale.

- Test Anxiety Scale: a 37-item self-report measure of anxiety experienced in test-taking situations.

- General Fear of Failure Scale: a four-item self-report measure that assessed a general level of fear and failure.

- The Marlowe-Crowne Social Desirability Scale: a 20-item scale that was used to measure the degree to which the students responded to this assessment in a socially desirable manner—based on a 33-item assessment developed by Crowne and Marlowe (1960). Students were asked to answer true or false to questions.

- The Engagement Subscale of the Rochester Assessment Package for Schools-Student Report: this self-report measured school engagement (behavioral, affective and cognitive). A composite score measured overall engagement based on 16-items

The findings from Caraway et al. (2003) did not determine causality. However, Caraway et al. came up with numerous findings that represented correlations. First of all, they found a significant correlation between social desirability and interest (11.7% and

28.8% of variance). As a result, socially desirable responding could have influenced student responses. Surprisingly, the researchers found a weak correlation between self-efficacy and overall school engagement. However, they did find a significant positive correlation between self-efficacy and grade point average ($p < .01$), which was one of the three indicators of student engagement. Specifically, higher self-efficacy, lower fear of failure, and lower social desirability predicted higher grade point average. Last, Caraway et al. (2003) found no significant varying impacts on the variables due to gender, race, or age. All in all, they argued that their study provided insight into strategies that teachers could apply to increase school engagement. For instance, Caraway et al. (2003) suggested that an intervention to increase the amount of positive feedback provided to students could be one way to increase engagement.

When reviewing this study, several concerns arouse. First of all, Caraway et al. (2003) used GPA as an indicator of school engagement. It is difficult to completely assess student grade point average as an indicator of engagement without understanding grade point average requirements. For example, a possible confounding variable could have been extra credit. If the students were allowed to fulfill extra credit points, did that necessarily mean that they were engaged? Moreover, were students' names required for their self-reports? The researchers assured students of anonymity, but did the researchers see student names, and, if so, did that exposure affect students' answers? Caraway et al. (2003) also needed to consider a variety of assessments other than student self-reports. The researchers, however, did take precaution to ensure the accuracy of self-reporting, as they assured students anonymity and confidentiality, in addition to assessing social desirability.

It is also important to consider that the study was relatively small (n=123) and did not represent a diversity of cultures. Caraway et al. (2003) also argued that age, race, and gender did not impact the result, but there were few racial groups represented other than White. Lastly, it is also important to consider the reasons for 83 participants failing to complete their questionnaire. How (if at all) would their input have influenced the data?

Also looking at self-efficacy and engagement, Greene, Miller, Crowson, Duke and Akey (2004) designed a study to test the impact of students' perceptions of classroom structures (examples: mastery focus, autonomy support, and non-competitive evaluation) on self-efficacy and perceptions of achievement and goals. They found that student perceptions of classroom structures are important for their motivation and engagement. The researchers based their work on the following theories: (1) Bandura's theory that self-efficacy is both a product of social intentions and an influence on the nature and quality of those interactions, and (2) Achievement Goal Theory, which predicted that the purposes students have for engaging in tasks will influence their level of actual task engagement (Greene & Miller, 1996).

Greene et al. (2004) conducted a study where 220 high school student volunteers from a suburban high school in the Midwest participated and completed a series of questionnaires over a three-month period in their English classes, which were taught by three different teachers. The participants were described as the following:

- 50 sophomores, 42 juniors, 127 seniors, and one unidentifiable

- 94 males, 125 females, and one unidentifiable

- 67% Caucasian, 16% Native American, 8% Asian American, 5% African American, and 4% Hispanic

Participants spent three months completing a series of questionnaires, which included (1) 38-item Survey of Classroom Goals Structures evaluated on four-point Likert scales (2) seven-item, four-point scale measuring the degree of confidence a student has that he/she can be successful learning in the current class (which measured cognitive engagement and achievement) (3) 26-item Approaches to Learning instrument, which measured mastery goals. The achievement measurement was the percentage of course points earned for the fall semester in English, which consisted of exams, projects and homework assignments.

Through path analysis following a preliminary analyses for establishing reliability and validity evidence, Greene et al. (2004) found the following relationships: achievement outcomes were influenced by both meaningful strategy use and self-efficacy; meaningful strategy use was influenced by mastery goals, self-efficacy, and perceived instrumentality, but not by performance-approach goals; mastery goals were influenced by variations in self-efficacy, perceived instrumentality, and perceptions of classroom tasks as meaningful and motivating; self-efficacy was influenced by perceptions of classrooms being autonomy supportive and using mastery-oriented evaluation, while perceived instrumentality was influenced by both self-efficacy and perceptions of classroom tasks being meaningful and motivating. The above results indicated that there was a relationship between students' perceptions of the classroom climate and their motivation (high self-efficacy, high mastery goals, and perceived instrumentality). Greene et al. argued that the findings were the first to support the claim that perceptions of classroom tasks as meaningful, relevant, and interesting (motivating

tasks) also influence the extent to which students perceive current learning as important to their future success (Greene et al.).

Moreover, the authors concluded that their research supported a recent body of research that has linked effective cognitive engagement to perceived instrumentality. Such connections implied that as tasks increase in their perceived agency, the incentive value of success also increases. Therefore, students invested greater effort (engagement) when tasks were perceived as having personal incentive value. All in all, Greene et al. (2004) implied the importance for finding relevance in learning tasks. Not only did student perception of instrumentality create a positive sense of self-efficacy, but it also resulted in student motivation and engagement.

The study by Greene et al. (2004), however, had some limitations. First of all, the researchers targeted a school population that was mostly White (67% Caucasian). In the study they do note this limitation; they argue that the findings were significant for both theory and practice. Are their findings relevant to minority populations? What about cultures who value goals differently Western Culture? This study generalized to the public, but failed to take into account different cultural values, in particular how different cultures see mastery versus performance goals. Though it quantitatively used path analysis to make a strong case for student perceptions of the classroom structures on self-efficacy, the study lacked the recognition of not only students' cultural backgrounds, but also achievement backgrounds. How do students past experiences and schemata about school affect their self-efficacy and engagement? The achievement measure was the percentage of course points earned for the fall semester in English. Perhaps instead the authors should have measured individual achievement through comparison between

previous and current scores on exams, as well as projects and homework. This comparison would not only be less competitive and more equitable, it would also recognize each student as an individual learner.

Whereas Greene and Miller (2004) failed to take into consideration student diversity, O'Neil and Barton (2005) ethnographically examined how a given population of students perceived themselves and the learning process through the lens of privilege and oppression within different ethnic groups. O'Neil and Barton were interested in the education of high-poverty urban youth. They wondered if social inequities contributed to lower levels of participation and interest among students in a science classroom.

The study (O'Neil & Barton, 2005) took place in New York City, where the eighth-grade state science test results from 2001-2002 school year demonstrated large discrepancy between the science achievement of Black and Hispanic students compared to White students (assessing rates of 29.4%, 28.9%, and 62.6%). With this information, O'Neil and Barton set out to find ways to engage all students in the learning of science, in particular cultivating a sense of ownership in the learning process. They asked the questions: Why did student ownership in science matter among high poverty urban students? What qualities defined student ownership in science learning?

O'Neil and Barton (2005) conducted an ethnography that looked at teaching as a response to students' individual voices. Specifically, they spent threes school years (2001-2004) working closely with two groups of five sixth-grade students that attended school in a high poverty urban community in New York City. During their time together, the researchers and students designed and produced two mini-documentaries in an after school science/technology club. The purpose of the documentaries was to give students

an outlet to express their ideas about science in their lives. The students had the power to choose what they thought was important for people to know, in addition to how they wanted to express themselves. The documentaries were titled "What We Bring to Science" (focused on physical and life science) and "Survival" (focused on environmental science).

Through the course of the video project, various forms of data were collected:

- Video Project Observations

- Instructor reflection notes

- Video transcription

- Group debriefing interviews

- Classroom observations

- School observations

- Out of school observations

- Semi structured interviews

The data was analyzed through a grounded processes approach. Upon beginning their research, O'Neil and Barton (2005) wanted to make clear how students viewed their roles in their science projects, in addition to how students viewed themselves in relation to projects and how/if students used their projects to make changes in their lives, both in and out of the classroom. As the project unfolded, however, the researchers saw an emerging theme of ownership, and they tested that theme against the multiple forms of data described above.

Students were divided up into two groups and each group was analyzed separately. The groups were called "Fabulous Five" and "Survival." The Fabulous Five

consisted of volunteer students, and Survival consisted of students who went through an application process to participate. They met two times a week either during recess or lunch. Groups were allowed to select any theme as long as they could explain what it had to do with science. The foci of the meetings were to deconstruct the video made during the last school year, reflect on the process of making the video, and determine what the process of making a second video.

Numerous themes were revealed after the analysis of the data. O'Neil and Barton (2005) saw the following as a relation to engagement and self-efficacy: agency through personal and community change, positive and empowering perceptions of self in relation to science and the video project, and expressions of pride in science, self, school, work, and neighborhood. Looking across the themes, the researchers found that ownership existed within the dialectic between process and outcome and the dialectic between social and individual. In relation to self-efficacy, O'Neil and Baron discovered ownership as something desirable for students to achieve and, once achieved, help students to engage more readily in the learning process. However, the researchers noted that they found ownership to vary from student to student and from moment to moment. Therefore, they purposed that ownership is a dynamic and generative process. The themes represented also show how student ownership depended upon both the individual student and the context of the individual. Ownership was developed through the interactions with other individuals. O'Neil and Barton supported these claims by illustrating how students outwardly expressed ownership to other members of their group by changes in behavior and their work ethic, in addition to positive views of themselves in relation to science.

These senses of ownership, the researchers noted, could only be maintained in an environment where it was valued.

With the understanding that urban science educators have been challenged with declining interest, attitudes and achievement among middle school students, this study gave implications related to self-efficacy and student engagement, in particular that a learning environment must support students in building a sense of ownership and foster students in building a sense of control and mastery (O'Neil & Barton, 2005).

Though the study took into consideration the student as an individual and credited diversity of environment and cultures, it demonstrated inequities that could perhaps discredit the study's implications (O'Neil & Barton, 2005). For example, the students were required to fill out an application, in addition to asking their teacher(s) to fill out a recommendation. Perhaps the students that had the ability and means to fill out their application were more self-disciplined and, in turn, would have an easier time taking ownership in the project. Moreover, the data analyzed did not take into consideration students' prior experiences and feelings toward science. Since the project was volunteer based and required an application for acceptance, possibly the students already had positive schema about science and, as a result, had a strong sense of self-efficacy and ownership such content.

This section looked at strategies to increase student self-efficacy, examining if such strategies supported student engagement. The studies showed how students viewed their ability in particular tasks and projects. Research revealed that students' perception of themselves and their classroom environment impacted their engagement in learning. More specifically, research showed that student perceptions of their individual abilities,

in addition to their classroom community's values and climate, effected student engagement and learning. Lastly, researched showed that if strategies positively effected student self-efficacy, students were more engaged in their learning.

Most of the studies examined focus on the individual student, rather than the classroom as a whole. The next section looks at strategies that take into consideration not only diverse learning methods, but also diverse student bodies. The following section examines research that focused on student diversity and student interaction as strategies for supporting student engagement.

<center>Diversity and Student Engagement</center>

Many factors contributed to the diversifying of the American student body: desegregation of schools, immigration, increases in poverty, detracking of students, etc. Regardless, many of today's classrooms are more diverse than ever (Marri, 2005). Figure 1 illustrates the possible complexities of diversity present in classrooms.
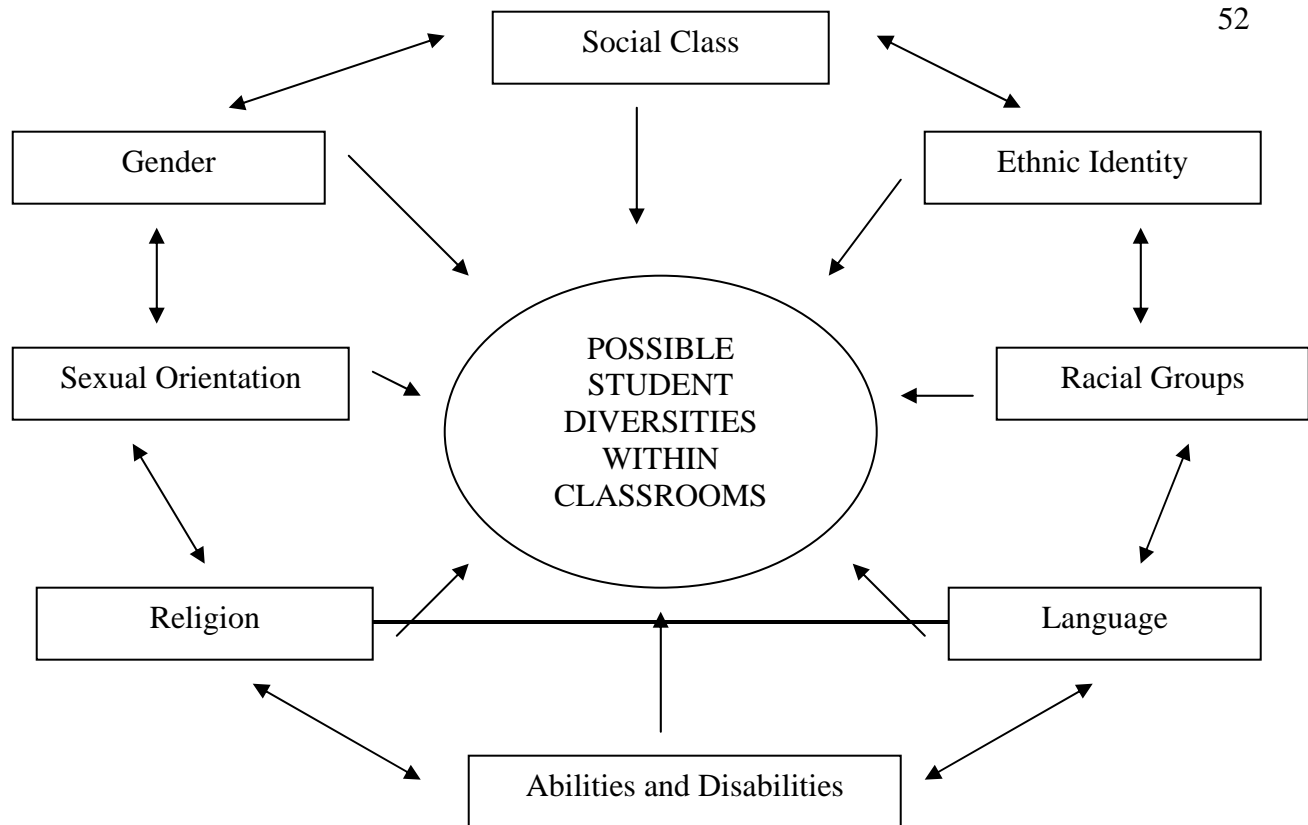
*Figure 1. Classroom diversity variables, Banks (2001)

The following studies examined the role diversity played in the classroom, in addition to the influence of diversity on student engagement. When reading this section, it is important to consider the questions: "Do personal biases, diverse student backgrounds and experiences (1) impact a classroom setting and (2) effect student engagement? Are there subjects/ content areas best suited for pedagogical approaches that utilize diversity? Do diverse learning abilities effect student engagement? Last, it is also important to consider if such variables as culture, ethnicity, gender, abilities, and socioeconomics influence student engagement in teaching practices that embrace diversity.

Nelson, Engberg, and Hurtado (2005) examined how particular courses that are inclusive of diversity (content and methods of instruction) promoted the importance

students placed on taking personal responsibility for social issues and problems. They

saw the relationship between the above as stemming from the relationship between

'diversity courses' and overall student engagement (Nelson Laird et al., 2005). They

defined diversity courses and courses meant to prepare students to become effective

citizens in a diverse society through encouraging interaction between diverse peers and

promoting democratic engagement.

The data for the study came from the Student Thinking and Interaction Survey

(STIS). The survey responses came from college students, and the survey was developed

as part of a larger national research project titled Preparing College students for a Diverse

Democracy (Nelson Laird et al., 2005). The purpose of the study was to assess students'

cognitive and social engagement over one term. In addition, data from diversity and

traditional courses were compared, which came from student responses to questions

about the pedagogies used in the courses.

To better understand the influence of a diversity course on the importance

students place on social action engagement, Nelson Laird et al. (2005) measured positive

quality of interaction and social action engagement using the variables of previous

diversity courses and students enrollment in diversity courses. The researchers began

their analysis using confirmatory factor analysis to test their measurement models

(Normed Fit Index and Comparative Fit Index) in addition to seeing how well their

variables and latent constructs fit their data.

The volunteer participant demographics are as follows: 60% of the

students were female, and 20-25% were students of color. The STIS was administered to

students during both the 2nd week of class and the 12th week, and 311 students out of 363

students (85.7%) enrolled in the diversity course while 193 out of 345 (55.9%) enrolled

in the traditional course filled out the STIS. However, the 12th week return rate for the

diversity coursed dropped to 73.6%. All in all, 398 students filled out the survey (Nelson

Laird et al., 2005).

Nelson Laird et al. (2005) found that diversity courses frequently used active

learning techniques such as small group work, which encouraged peer interaction across

diversities. Moreover, they addressed aspects of diversity (race, sex, class, etc.) and

forms of oppression (racism, sexism, classism, etc.). The researches also found that the

number of previous diversity courses students took predicted students' positive quality

interactions ($p < .001$), which, in turn, predicted social action engagement ($p < .01$). They

argued that these connections predisposed students to positive interactions with diverse

peers (Nelson Laird et al., 2005). Moreover, student enrollment in a diversity course

positively affected students' quality of interaction with other students, in addition to their

social action engagement. Overall, their model accounted for 57% of variance of the

importance of social action engagement and 42% of variance for positive quality of

interactions at the end of the term.

Nelson Laird et al. (2005) argued that their study gave significant evidence for the

effect for enrollment in diversity courses on positive interactions with diverse peers and

social engagement. When critiquing this study it is important to consider how high

students held social engagement. What were their cultural backgrounds? What other

factors (if any) in their lives determined their questionnaire answers and their overall

engagement? In addition, the authors stated that students who enrolled in diversity

courses were expected to engage in course material and to interact with teaching models designed to foster group engagement. How did they ensure this?

Both the traditional and diversity courses examined provided in-class opportunities for peer interactions, however did students have prior training in group and social skills? What there their past experiences with cooperative and collaborative pedagogies? All of these questions could elicit confounding outcomes, and, therefore, affect the study's results. Peer interaction across diversities might have encouraged social injustices rather than social equality. It is necessary to know details surrounding the interactions of the students involved. A clear limitation to the study was the data. Nelson Laird et al. (2005) relied solely on self-report data (questionnaires). Also, they used GPA as a determiner of engagement. What were course requirements? How were students' GPAs established? Last, it is important to mention the following: because the authors used a specific diversity course in their study, they were unable to generalize their results to alternative courses. Moreover, the researchers lacked a qualitative understanding of their participants' daily routines, both in the diversity course and the traditional course.

Next, a study by Malaney and Berger (2004) asked the question: what are the effects of students' individual backgrounds, pre-college environments, and pre-college activities on three democratic outcomes (social change self-efficacy, social action engagement and social leadership skills) that serve as indicators of students' readiness to positively engage with diversity? They were interested in the interaction of student backgrounds, pre-college environments and pre-college engagement. Figure 2 depicts this interaction.
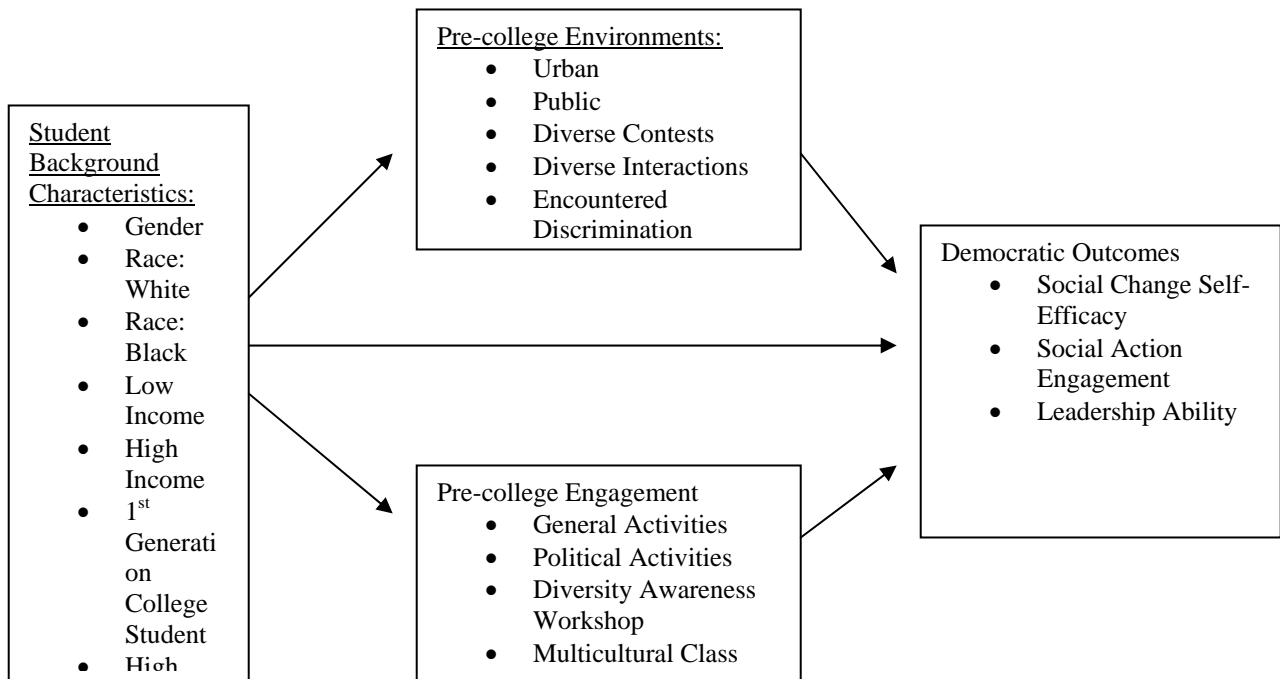
Figure 2. Assessing How Diversity Effects Students' Interest in Social Change, Malaney & Berger (2004, p. 449)

Malaney and Berger (2004) conducted their study in the summer/fall of 2000, where 10 U.S. college institutions administered a survey to every entering student. University of Massachusetts Amherst was one of those universities, and this study is based on results from the incoming freshman of UMA. Of the 3,690 students who enrolled at the University, 3,006 completed the survey (response rate of 81.4%). Table 4 indicates the response rates for individual racial/ethnic groups.

Racial/Ethnic Group	Rate of Response
White	2503 (88.0%)
Asian/Pacific Islander	246 (84.5%)
Latino/Hispanic/Chicano	85 (64.9%)
African American/ Black	73 (55.3%)
Multi-racial/ ethnic	67
American Indian/ Alaskan Native	6 (35.3%)
Unreported	26

*Table 4. Rate of Response per Racial/Ethnic Groups, Malaney and Berger (2004).

The authors used blocked hierarchical regression to analyze the data, which was a statistical method that examined how well each set of variables predicted the dependent variable (Malaney & Berger, 2004). Specifically, the method looked at how students' backgrounds, pre-college environments and pre college engagement contributed to the understanding of the development of democratic outcomes in the students. The regression equation that calculated Social Change-Efficacy showed just over 11% of variance. The regression equation that calculated Social Action Engagement accounted for just over 25%. Moreover, the equation predicting the development of Social Leadership Skills showed 22% of variance.

In terms of engagement and entry characteristics (or students' backgrounds), females ($p<.001$) and students from low income families ($p<.01$) were more likely to participate in democratic activities while in college such as joining social groups, making efforts to get to know individuals from diverse backgrounds, taking courses devoted to issues surrounding diversity, etc. In addition, previous interaction with diversity also

demonstrated a positive effect (p<.001), as well as previous exposure to discrimination (p<.05). Students from less racially diverse homes and school environments were less likely (p<.001) to view democratic action important in college. The following pre-college engagement had positive influences on intentions to participate in democratic activities while in college: political activities (p< .001), diversity workshops (p< .001), participation in general activities (p< .001), and multicultural classes (p< .001).

The research (Malaney & Berger, 2004) also indicated that students from lower income backgrounds are more likely to actively participate in democratic activities in college, but are less likely to have confidence in their leadership ability. The authors found such results troubling because it showed that those who are most likely to engage in democratic efforts are less likely to lead democratic efforts. They argued that a possible result of such outcome was that leadership of campus activities would be left to those who are more comfortable in leadership roles, but are less likely to use those skills to promote democratic actions across campus. Moreover, students from high income reported high levels of leadership abilities, but also reported lower levels of initiative for engaging in social change. Therefore, the previous two measures of income were the only entry characteristics that were significant determinants of social leadership skills.

The authors found that the results of the study indicated that students came to college with varying levels of development and readiness to engage in the diversity of the college environment (Malaney & Berger, 2004). Malaney and Berger stated, "It is no surprise that students from different backgrounds, who grow up and attend schools in different contests, and engage in different types of activities are at varying degrees of readiness to take advantage of and contribute to the educational benefits of campus

diversity (p. 453)." Moreover, the authors argued that the results of their study should, therefore, indicate the exposure of the democratic principle of diversity in the K-12 educational arena. In other words, the authors saw a correlation of students who were exposed to diversity and/or participate in educationally driven diversity workshops before college, and students being more likely to reap the benefits of diversity while in college, resulting in the engagement in efforts of diversity while in college and perhaps in the broader community after college graduation.

Important concerns arise when critiquing this study (Malaney & Berger, 2004). The study was funded by the US Department of Education and meant to counter a report that found increased diversity on campus to not lead to educational benefits and contributes to increased racial tension(Rothman, Lipset, & Nevitte, 2003). When a study's purpose is to counter another study, it is important to consider if there are initial biases in place that may alter researchers' lenses? What about the other universities that participated in the study? Where is their information? Did they have similar findings? Were the surveys anonymous? Were they filled out during the students' own time or in class? All are important questions to consider, as their answers might have altering effects on the study's results.

Above all, this study (Malaney & Berger, 2004) is important to the question of the democratic principle of diversity and its affects on student engagement. It alludes to the need for teacher strategies to go beyond simply diversity and better understand the historical, psychological and behavioral elements that make up diverse students. As a result, it emphasized that educators need to be knowledgeable of the developmental state of new students engaging in diversity.

Similar to Malaney and Berger (2004), Rothenberg, McDermott and Martin (1998) looked at diversity in terms of learning levels (i.e. diverse tracked students). They found that exposing students to diversity led to greater engagement. Their study followed an urban school that decided to eliminate academic tracking in science and social studies. As a result, students were taught in a heterogeneous classroom using cooperative learning methods. Therefore, not only were the democratic principle of diversity embraced, but also the democratic pedagogical strategy of cooperative learning. Prior to detracking and incorporating cooperative learning, the superintendent conducted special community and faculty meetings to encourage the support of parents, teachers, and students. During the meetings, the voluntary participants learned that detracking would represent significant changes in the organization of the school. Specifically, they learned that (1) integrating high and low achieving students radically departed from previous academic practices (2) detracking would need district support and resources in order to train teachers (3) teachers would be required to instruct both high and low performing students, which departed from past norms of seasoned teachers only teaching highly skilled students. It is also important to note that the community in which the school was located was rural and quite homogeneous with respect to culture and ethnicity, and the area was economically lower to middle class (Rothenberg et al., 1998).

Rothenberg et al. (1998) observed the school in two phases over one year and asked the following questions (1) what are the salient teaching and learning factors observed in differences in instruction in tracked and untracked classes? (2) Which of those factors are most affected by teaching in tracked vs. untracked classes? (3) How are process skills such as writing, verbalizing and critical thinking affected by detracking?

This last question speaks to the diversity and its effects on student engagement. Therefore, it is necessary to highlight such a question for the sake of this critique.

Four social studies and four science teachers volunteered for the projects, and 84 students in 12 classes participated. Again, this project was volunteer-based where 49% of all students eligible volunteered. The volunteer teachers received training in cooperative learning teaching methods. The researchers (Rothenberg et al., 1998) qualitatively observed independently of each other, and each completed a minimum of eight days of classroom observations (106 hours) in both tracked and untracked classrooms.

To help ensure that the researchers did not allow their biases to overshadow their data, they obtained descriptive validity by triangulating their data using the following sources: (1) descriptive journal entries of each classroom observation (2) records of conversations and interviews with students and teachers (3) data such as written lesson plans, assignment and study guides (Rothenberg et al., 1998). In addition, when a conjecture could not be confirmed with multiple sources of information, the researcher withdrew the interpretations until more support could be found.

Quantitative data of the first year of detracking showed achievement results to be positive (Rothenberg et al., 1998). Of the students who were previously lower tracked, 25-30 % passed higher tracked examinations (a test they were not allowed to take before). Moreover, attendance records of previously lower tracked students improved significantly ($p < 0.01$) (Rothenberg et al., 1998). Rothenberg et al. reported that teachers who had implemented change in their teaching strategies, such as going from teacher-centered classrooms to student-centered, saw an improvement in student learning.

Specifically, teachers planned their cooperative learning according to Slavin's co-op/co-op model, where they separated students into two groups: one group pretended to be a nineteenth century country in the process of industrializing, and the other was a role within the country such as a peasant, entrepreneur, aristocrat, or ruler. This particular unit was observed in three classrooms (two untracked and one college preparatory track (Rothenberg et al., 1998). The researchers claimed that the unit and the cooperative learning model were highly successful. Rothenberg et al. (1998) noted the following:

- Students were consistently on task

- Students demonstrated knowledge of the content both verbally and in writing

- Everyone enjoyed the material

- Discussions were on several cognitive levels

- Teachers acknowledged that they knew the students were learning more content that they became openly enthusiastic.

- Most of the teachers also noted that they no longer were aware of students' previous tracks.

The authors saw the above observations demonstrative of student engagement, as a result of diversifying both the student body and pedagogy. Overall, the researchers also noted that the untracked students displayed greater eagerness and excitement (Rothenberg et al., 1998). They continued to infer that this might have occurred because they had more opportunities to interact as cooperative learning increased. Moreover, they noted that as the year progressed that all the upper and untracked classes indicated greater interaction and more open-ended interaction (Rothenberg et al., 1998).

All in all, this study concluded highlighting the values of cooperative learning as a teaching method, in addition to the advantages of detracking classrooms such as increasing performance of previously lower tracked students. They recommended the abolishment of 'low' tracks and the shift to heterogeneous classrooms (Rothenberg et al., 1998).

Several critiques emerge after examining the above study (Rothenberg et al., 1998). For instance, the study only dealt with social studies and science though the authors generalized their findings to all disciplines. It is important to consider, for example, if courses in English/Language Arts and math would elicit the same results. The unit was about the process of industrialization, and was described by the authors as both open ended and somewhat controversial. As a result, it is possible that passion for such real world content drove student interest. Therefore, it is also important to consider, for instance, if a lesson on the plot of a fictitious book would also benefit a diverse classroom. If the researchers generalized their findings across disciplines then they must take into account different contents and genres in those disciplines. Next, what if the researchers incorporated the diverse classroom with another method of teaching other than cooperative learning? Changing both pedagogy (cooperative learning) and students (detracking) might have worked together to create positive results. If the researchers took away the change in teaching models, would the detracking program been as successful?

In addition, the participants (both teachers and students) were volunteers. Can one assume that those who volunteered were already engaged in their education? If the students and teachers had instead been required to participate, would the findings have been different? Moreover, the authors only spent a total of eight days participating and

observing, and they failed to describe the proximity of those days. This could have jeopardized their finding because they were unable to observe students outside the unit and, as a result, may have missed observing students who would otherwise be engaged in different material. Perhaps the authors' conclusion would have been strengthened had they spent a longer period of time within the classrooms. Such points and questions are necessary to consider when critiquing the study (Rothenberg et al., 1998).

One should also consider the authors' evidence for achievement and higher attendance. For example, does higher attendance mean that the students were actually more engaged? Were there other factors (i.e. time of year, sports, assemblies) that elicited student attendance? Moreover, how did the researchers measure learning? How did they know student learning had improved? They mentioned exams and assignments in their study, but were there other ways of measuring learning? If not, how did the researcher do an individual assessment during a cooperative learning lesson?

It is also important to consider the previously higher tracked students. The researchers failed to mention how those students were engaged when placed with lower tracked students. Did their performance change, or did they slip behind? In addition, would this study apply to culturally and ethnically diverse regions? The fact that this particular region's population was not culturally or ethnically diverse might have contributed to the cooperative learning pedagogical success.

Whereas Rothenberg et al. (1998) focused on the effects of diversifying learning levels, Marri (2005) focused the affects of teaching diversified cultures. More specifically, through a collective case study, he investigated how three skilled secondary social studies teachers taught about and for multicultural democracy in an effort to

prepare students for active and effective citizenship. Similarly to Rothenberg et al.

(1998), Marri (2005) examined pedagogies that supported diversity and positive affects

on student engagement.

The framework for this study stemmed from what Marri (2005) referred to as

CMDE, which consisted of the elements of critical pedagogy, community building and

content. He hypothesized that in order for students to engage in multicultural democracy

they would need specific elements. Table 5 more specifically outlines the CMDE

framework and what elements were necessary within that framework for student

engagement.

Critical Pedagogy	- Engages students in problem solving - Multiple perspectives
Building of Community	- Respectful environment - Conflict resolution - Group skills - Discussions - Multiple viewpoints - Students seen as individuals
Disciplinary Content	- Mainstream academic knowledge, which provide students with the 'codes of power' (Delpit, 1988) - Transformative academic knowledge that challenges mainstream academic knowledge - Multiple perspectives

*Table 5. CMDE framework, Marri (2005)

The study by Marri (2005) connects to this paper because it looks at the strategy

of using diversity as an educational tool, and how diversity effects students engagement,.

Marri (2005) focused on three public high school U.S. history teachers The three teachers

who were observed over the course of one semester were chosen for providing their

students with the following (Marri, 2005):

(a) Equitable opportunities for all students by integrating multiple sources of information.

(b) Multiple perspectives

(c) Encouragement in learning outside the classroom

(d) Experience and involvement in professional development activities

Throughout the four weeks, the author observed a minimum of twenty 50-minute class periods for each teacher. Moreover, he interviewed each teacher three times, in addition to analyzing materials such as handouts, quizzes, exams and projects. It is important to note the Marri (2005) did not interview students or collect their work, as that was not necessary to the study.

The context of the three observations was in the school district of Homestead, which encompassed 11 towns and 65 square miles. As stated earlier, Marri (2005) conducted three case studies. The Table 6 summarizes his findings.

Case 1: male teacher at Seventh Avenue School	7th grade social studies - Mid-30's - Alternative school that emphasized academia and work experiences - One-month-long unit of the Civil Rights movement where he emphasized moral development and moral choices - Text-based discussions and inquiry-based lessons.
Case 2: female teacher at Townsend High School	10th year African American teacher in her 40's - Headed the Minority Student Affairs Office at the school - Her History class had 21 ninth graders 3-week unit on the '1920's to the Beginning of World War II,' which focused on the roles of women.
Case 3: female teacher at Morningside High School	10th year White teacher in her 30's - Traditional high school with 2,000 students and one hundred countries are represented in the student population. - The school has the highest attendance and graduation rates in the district - Over a three-week unit on the Vietnam War, which focused on simulation. She divided the class into several fractions and they had to earn Presidential Influence Points for group and individual effort.

*Table 6. Summary of Cases, Marri (2005).

Many themes evolved from Marri's (2005) case studies. In particular, there was a cross-case theme of teaching the "codes of power" (Delpit, 1995), which, according to Delpit, served as rules for social participation within power. As a result, students learned content and skills that are valued by societal institutions such as universities and work forces. All three teachers were explicit and introduced codes through classroom discussions and presentations. In addition, Marri wrote, "These teachers expected

students to engage with information in order to understand it and to bring in other related information" (1044). In order to engage students, the teachers successfully tapped into other mediums such as pictures, audio recordings, internet, music and film. Therefore, if some students had a hard time engaging with written assignments, they were given the opportunity to engage with other sources of information.

Citizenship was another cross-case theme. In particular, the teachers prepared students to engage with others democratically. All of the teachers designed their curriculum and pedagogy to encourage students to become effective citizens who actively engage with other citizens (Marri, 2005). An example of this is when the male teacher used inquiry-based pedagogy to engage his students in critically thinking about the civil rights movement (Marri, 2005).

Included in his description of this study, Marri (2005) recognized factors that acted as obstacles in his initial research questions. He noted that the following factors affected teaching about and for multicultural democracy: class context, inexperience with diversity, and lack of promotion of social action. To elaborate more on these confounding factors, Marri specified class context as one of the female teacher's classes consisted mostly of upper-middle-class White students, which strongly influenced the class practices (Marri, 2005). For example, a female teacher commented during an interview, "if her students were more 'multicultural' then her curriculum would have been more multicultural" (p. 1050). Moreover, the teachers studied all had limited conceptions of diversity. For instance, when asked if their students were diverse, all three teachers spoke about their students' diversity in terms of race/ethnicity. (Marri, 2005). Unlike Rothenberg et al. (1998), the teachers failed to see diversity as pertaining

to factors outside of race/ethnicity. In addition, the teachers also lacked the promotion of social action. As the CMDE framework stated, it is necessary to engage students in critical thinking (the first stage in the critical pedagogy stated above). However, the three teachers failed to promote individual or group social action. Marri claimed that the teachers did not stress social action because they placed a higher priority on pedagogical goals such as critical thinking.

Data from the study also revealed that the three teachers taught skills for democratic living (means of creating and maintaining a democratic and just society) (Marri, 2005). For example, the male teacher expected his students to actively engage with other citizens in various communities. Referring to the skill of discussion around multiple viewpoints, Marri wrote, "By emphasizing this skill for democratic living and based on my observations of his students, Mr. Smith may have prepared students to engage with others on the difficult path of democracy" (p. 1053).

Marri (2005) concluded by stating, "the ultimate goal of this research is to uncover ways in which to transform a racially and ethnically diverse, politically disengaged population into a thoughtful, active, and effective citizenry" (p. 1055). So what are the implications of his study? First of all, one can refer back to the CMDE explained earlier. Marri found that this framework (with the addition of skills for democratic living) could be used as a guide for democratically engaging disengaged students, and that teachers have the responsibility to teach students about CMDE. Marri suggested teachers do this by (1) discussing and explaining the CMDE with preservice teachers and (2) bridging the gap between critical pedagogy and actual classroom implementation.

Clearly, this study demonstrated that teaching about and for multicultural democracy was difficult for the teachers (Marri, 2005). Although Marri suggested a solid framework for engaging students in multicultural democratic education, this study was not without some holes. For instance, *how* does sharing about the CMDE with preservice teachers prepare students to engage in multicultural democracy? The author elaborated on theories, but did not give specific practices that resulted in student engagement. Moreover, where was the evidence? In other words, how did Marri know that teaching the CMDE framework resulted in thoughtful, active and effective citizens? Although the scope of the study revolved around teachers, it would not only strengthen the study's implications to see how the CMDE affected students, but it would also strengthen the study's implications to see how the framework affected students over time.

Lastly, explaining social action and promoting social action are two different goals. It is important to consider if it is feasible to explicitly teach and/ or promote 'social action' in the face of pedagogical goals such as critical thinking and teaching toward a standardized test. Or can social action be implicitly taught? Without long-term case studies is difficult to answer such questions.

As each classroom is full of unique and diverse students, the strategy of classroom discussion can be considered a strategy that embraces student diversity. In a study that examined classroom discussion and study engagement, Jones (2005) conducted an ethnographic study of four English classes (two high-level and two low-level) that included observations and questionnaires. Specifically, Jones looked at classroom discussion constructions and student engagement, and the methods teachers used to encourage class participation.

Using observations and questionnaire results, Jones (2005) looked for overarching themes across class levels and grade levels. Jones found that students were most engaged during a collective discussion versus group/partner discussions. However, discussions were most frequent when teachers took active roles in organization and implementation, often using probing questions.

Jones (2005) also found that 10th grade Honors English Seminar courses had the highest positive student engagement, and 10th grade English Regular courses had the lowest positive engagement. In addition, 12th grade English Regular classes had the highest rate of negative student engagement, and 10th grade English Regular courses had the lowest rate for negative student engagement. Therefore, Jones hypothesized that younger students in higher-level courses engaged better in classroom discussions. Notwithstanding, Jones also emphasized that observations led to find that the teacher's role played a greater role in determining student engagement, compared to student age or specific course level.

However, Jones (2005) did not consider the quality of discussion. It is possible that students could have been discussing topics that were off-task and disengaging. Jones generalized her research question to the entire classroom; as a result, the research should have taken into account every student's engagement and behavior. Mostly likely, the small number of participants also affected the study's outcome. Further research is needed to compare this study with studies that included a larger number of participants. Another consideration is the time of year the study took place. Jones noted that observations were conducted toward the end of the course, which could have influenced student behavior. Therefore, further research is needed surrounding the questions of how

discussions impact student engagement, and which students are more engaged through discussions.

The previous studies examined the effects of diversity on student engagement. Specifically, each study broke down diversity to mean one of the following: 1) exposure to peers from diverse cultures and socioeconomic statuses 2) multicultural curriculum 3) students' background in multicultural education 4) detracked classrooms. Researched showed that diversity can be a tool to support student engagement. This section is important this paper because it considers the impact of student backgrounds and experiences on student engagement. The following section examines research that focused on cooperative and collaborative teaching pedagogies as strategies for supporting student engagement.

<div align="center">

Cooperative and Collaborative Learning

Strategies and Student Engagement

</div>

Like some of the studies mentioned above, diversity in education can be a purposeful strategy to elicit student engagement. This next section examines additional teaching strategies like cooperative and collaborative learning, where students interact with each other in the efforts to achieve a common goal. How does such interaction influence student engagement? Vygotsky argued that collaboration and cooperation help students progress through their zone of proximal development through communications and group work in which they are engaged (1978).

It is important to first note that throughout this section, the terms cooperative and collaborative learning are used interchangeably. Goodsell, Maher, and Tinto (1992)

argued that most researchers often use cooperative learning and collaborative learning interchangeably, as both terms imply two or more individuals working together on one or more tasks (Ley, 1995).

In an ethnographic study on cooperative learning, Siegel (2005) examined variations in teacher implementation of a research-based model of cooperative learning. Siegel defined cooperative learning as the following: "Characterized by division of labor, interdependence to achieve a mutual goal, and group rewards for goal attainment, cooperative learning typically involves students working together in small groups to complete shared academic tasks" (p. 220). In other words, he viewed cooperative learning as students working together despite their differences.

The researcher used qualitative research methods (ethnography) to study the effects of cooperative learning on middle school students' engagement (Siegel, 2005). Specifically, Siegel conducted a federally funded two-year study in four schools (primary, intermediate, middle and high school) that focused on 3000 students in addition to teachers. The students were selected from their teachers (mix of lower and higher ability levels) and there were a total of 134 students in 10 classes. Teachers were chosen from the following: criterion-based selection (individuals selected with specific attributes relevant to the study), and nomination by peers who used cooperative learning regularly.

Siegal (2005) used triangulation of information across data sources. First, he participated in two years of observations, where the first year he focused on peer leadership and students, and the second year he focused on participating teachers. The observations here conducted by teams of researchers as a way to minimize biases, as researchers carried out peer debriefing and member checking. Researchers focused on

lesson activities, instructional elements of cooperative learning, and student group composition. Second, Seigal conducted interviews with cooperating teachers. Specifically, he carried out two formal interviews per participating teacher. Last, Siegal conducted interactive data interpretation, where he identified reoccurring themes through the process of coding.

Siegel's (2005) results found several patterns among teachers and classes.   For example, he found that all the teachers studied described cooperative learning as involving students working together to complete a common task, despite their differences. All of the teachers viewed themselves as either a 'facilitator' or 'passive participant.' Moreover, they viewed all of the students as 'active participants.' In other words, they observed all of the students to be engaged in a common task. Although they all described cooperative learning similarly, their practice varied particularly within their social skills instruction (Siegel, 2005). In addition, Seigel found the following variables to affect the implementation of the cooperative learning task: (1) teaching style (direct instruction verses flexible) (2) teaching context (course content, student ability, perceived time constraints) and (3) teaching status (expert versus novice).

Similar to the effects of choice on student engagement, Sigel noted that cooperative learning allowed students to take ownership of their own learning. He quoted a teacher saying, 'Classes in the past were strictly teacher-centered… now kids are more actively engaged and they help each other out. I've had to learn to accept that some kids don't need me as much. I am more willing to move away from the front of the room and let them take control of the learning' (p. 229).

Siegel (2005) also found cooperative learning to reinforce student academic achievement. He also found face-to-face interaction, positive group interdependence and individual accountability to occur more frequently than facilitation procedures such as social skills instruction and group processing.   Siegel found that student engagement in the process of cooperative learning does not just happen. In other words, the teachers often need to interrupt students to revisit skills involved in the process. One teacher reported that at times it was necessary to postpone cooperative learning to address classroom organizational issues or manage student behavior problems (Siegel, 2005).

Ultimately, Siegel (2005) elaborated on the complexities of cooperative learning, highlighting teacher biases and prior experiences and prior knowledge. He noted that teacher training additionally influenced the understanding of cooperative learning. Regardless, Siegel argued that some participants had trouble giving up their position as a teacher, and the results of his study suggested that in order to use cooperative learning, teachers had to give up some control to students in their classrooms.

When critiquing this study, it is first important to mention that the teacher participants were not involved in the planning and decision-making; they simply implemented the practice. The study reported that teacher peers nominated the teachers involved (on the basis of the past implementation of cooperative learning), however, it did not specify on the exact implementation of cooperative learning. As a result, it is difficult to ensure, despite teacher training, that all of the teacher participants correctly implemented cooperative learning pedagogies. In other words, would they implement such strategies in an unsupervised natural setting? Did teachers' value of cooperative learning and style of implementation determine the outcome of student engagement?

Such questions are important to consider when a teacher is ultimately in control of student cooperative learning.

It is also important to consider the student participants in this particular study (Siegel, 2005). Most of the students were White, and the author failed to describe the ethnicity of the remaining students. In addition, the students were tracked depending on their prior achievement, and most students came from the same socioeconomic status. As a result, student diversity was limited to variables outside the above classifications. Were the cooperative learning tasks conducted more smoothly because of the above similarities? If so, can such pedagogy be generalized to populations outside of the study when the participants in the study were similar in more than one way?

Moreover, it is important to consider Siegel's (2005) findings about the benefits of cooperative learning, as the majority of the teachers switched to direct instructions when the stakes were high (i.e. standardized test prep and time constraints). In other words, what were the benefits and/or disadvantages to facilitating cooperative learning and then switching to direction instructions when achievement actually counts beyond the classroom? It is important to note, however, that not all teachers changed pedagogies when the stakes were high. One teacher in the study was quoted as saying, "some people complain about covering less material, but I don't find that to be the case. At the beginning, you may have trouble covering the material, but once the groups start to function independently, you accelerate. In the end, you end up in the same place" (p. 230). However, it might be important to consider this particular teacher's implementation of cooperative learning. What were they, and how did they affect student outcomes? This is important when considering the question of how cooperative learning
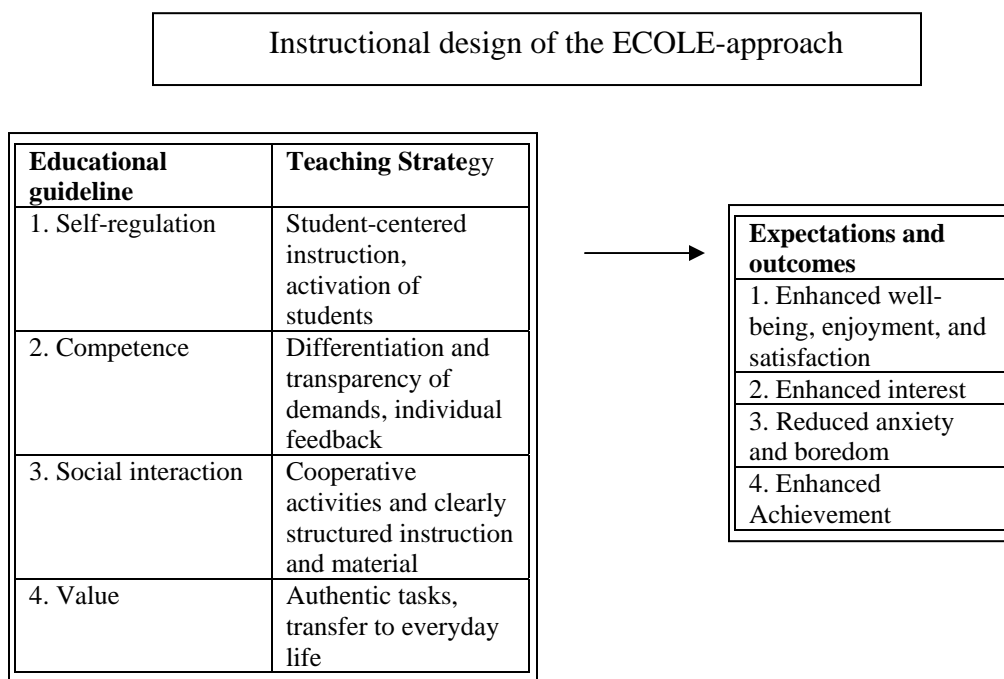
effects student engagement.   Lastly, because the students were similar in race and ethnicity, the issue of socialization of similar backgrounds emerged. Not eliminating other forms of diversity such as learning abilities and styles, it is important to consider the reinforcement of social injustice when not all cultures are represented in a community.

Also examining cooperative learning, but specifically looking at emotion, teaching strategies and achievement, Glaser-Zikuda, Fub, Laukenmann, Metz and Randler (2005) tested their theoretical approach on 8th and 9th graders in southwestern Germany. They hypothesized that a combination of direct instruction and cooperative learning (student-centered) would have a positive effect on students' emotions and achievement.

Specifically, this quasi-experimental study presented the theoretical guideline of ECOLE-approach (Emotionally and Cognitive Aspects of Learning). The authors (Glaser-Zikuda et. al, 2005) stated, "ECOLE aims at improving the quality of instruction by increasing positive emotions and achievement, and by avoiding negative emotions" (p. 481). The ECOLE presupposed that school and achievement situations brought out certain emotions in students such as boredom, anxiety, enjoyment and satisfaction, and that boredom and anxiety were negative emotions; whereas, enjoyment and satisfaction were positive emotions. In addition, the framework presumed that emotions might initiate, terminate, or disrupt information processing and result in selective information processing, or they might organize recall (Pekrun et al., 2002). In terms of self-efficacy, the authors also argued that satisfaction in learning required that students experience ability to master and have interest in a task, in addition to positive attributions of self-

concept such as one's success and ability. In other words, how students perceived their own learning abilities could influence their achievement and overall engagement. Glaser-Zikuda et al. also incorporated student choice and overall learning responsibility into their theoretical framework by noting the importance of self-regulated learning. Specifically, they argued that positive emotions facilitated self-regulated learning and that positive value was the result of emotions such as enjoyment while being engaged in an activity (Glaser-Zikuda et. Al, 2005).

Glaser-Zikuda et. al (2005) hypothesized that the combination of student-centered and teacher centered instruction (cooperative learning and direct instruction) would have a positive affect on students' emotions and achievement. Such combination would contain instructional design within the ECOLE-approach described above. Figure 3 further breaks down the ECOLE- approach.

Instructional design of the ECOLE-approach

Educational guideline	Teaching Strategy
1. Self-regulation	Student-centered instruction, activation of students
2. Competence	Differentiation and transparency of demands, individual feedback
3. Social interaction	Cooperative activities and clearly structured instruction and material
4. Value	Authentic tasks, transfer to everyday life

Expectations and outcomes
1. Enhanced well-being, enjoyment, and satisfaction
2. Enhanced interest
3. Reduced anxiety and boredom
4. Enhanced Achievement

*Figure 3. Instructional Design of the ECOLE-Approach, Glaser-Zikuda et al. (2005)

Glaser-Zikuda et al. (2005) tested the above approach by conducting a quasi-experimental field study aimed at examining ECOLE instruction verses teachers' traditional instruction (teacher-centered). The control group consisted of five biology teachers, seven physics teachers and six German teachers. The sample group consisted of 1,010 8th and 9th graders from Germany (511 females and 499 males). Three types of evaluation measurements were used in the study: (1) achievement measures (2) psychometric measures of emotional/affective relevant variables and (3) grades (Glaser-Zikuda et. al., 2005). Two different pretest achievement measures were conducted and then compared to two post-test measurements, in addition to psychometric data gathered during the pre and post-tests. Students also assessed teacher instruction by giving grades based on the German grading system (ranging from 1 (very good) to 6 (very bad). Control variables such as teacher and parent behavior and school satisfaction were also collected.

As hypothesized, achievement increased in all subjects that incorporated ECOLE instruction ($p < 0.001$). However, the authors' hypothesis on self-regulated learning was only confirmed in science ($p < 0.05$) (Glaser-Zikuda et. al., 2005). Results also showed a negative self-concept of ability in physics. The authors noted that students might have been less engaged in physics because the subject in Germany is considered by most to be extremely hard (Glaser-Zikuda et. al, 2005). Moreover, self-regulated learning was rated higher in ECOLE groups compared to control groups in physics and biology, but not in German (Glaser-Zikuda et. al, 2005). Dissimilar to the authors' expectations, the ECOLE-approach had little affects on interest and intrinsic motivation, and, compared to

achievement, the affect of ECOLE instruction on emotions was also weak (Glaser-Zikuda et. al, 2005).

When considering this study (Glaser-Zikuda et. al, 2005) it is important to consider the subjectivity of emotion. Like stated earlier, student emotions were based on both their achievement and their assessment of instruction. If a student is engaged in an activity can it be assumed that he or she experienced positive emotions? Moreover, it is also important to consider the various definitions of achievement, as grades may not me the only determiner of achievement. For instance, cooperative learning could spark achievement in social skills that may or may not be detectable. Similarly, group interaction could be a social skill that needs to be taught and developed. Did the researchers go over skills for self-regulation and group interaction? The authors mentioned that perhaps the students' lack of preparation in group skills resulted in insecurities in their ability to achieve, which ultimately lead to unexpected results (Glaser-Zikuda et. al, 2005).

It is also important to consider student achievement in comparison to social registers. Glaser-Zikuda et al. (2005) stated, "experience of active, self-regulated and autonomous learning would have a positive impact on well-being, motivation and interest, and, as a result, on achievement (p. 484)." Most often, American public schools operate from middle-class norms, but fail to teach such norms (Payne, 1998). Therefore, by the authors concluding that active and autonomous learners are positively impacted fails to take into consideration non middle-class students. Like differences in culture and ethnicity, gender is a variable that needs to be examined before generalizing results. The authors reported negative self-concept in students within the physics classroom. Was this

unexpected result reflective of the ECOLE approach, or of gender stereotypes surrounding science? There was also a clear dichotomy in subjects. The study revealed that students had more positive experiences with cooperative learning in German class compared to physics. Do such results have implications for the success of cooperative learning and within subject areas (language arts vs. math and sciences)? There needs to be further research to conclude such implications. Lastly, Glaser-Zikuda et. al (2005) chose motivated teacher volunteers for their quasi-experiment. How would the ECOLE approach results compare if the teachers were less skilled? In addition, how would results differ if the researchers had chosen teachers who did not have established and positive relationships with their students? A lack in foundational positive relationships between teacher and student could elicit a lack of engagement in learning, regardless of instructional approach.

In a massive study looking at 27,000 students, teachers and parents, in addition to observing over 1,000 classrooms, Goodlad (2004) and his colleagues also set out to investigate cooperative group working and community building within diverse environments. Specifically, Goodlad asked questions revolving around the function of schooling, teacher practices, teacher and parent roles, school and classroom organization, and curriculum. He stated, "We cannot generalize to all schools from this sample" (p. 18). Rather, he hoped to raise questions that included underlying democratic principles such as student choice, diversity of students and their options, and equity. For this paper's purpose, however, it is important to narrow in on Goodlad's investigation of student engagement (Goodlad, 2004).

Goodlad's (2004) motivation for such a massive study stemmed from his belief that most efforts to improve schools were founded on ignorance, specifically ignorance of the function schools and schools' inner dynamics. He referred to Seymour Sarason's (1971) warning, "schools have a distinctive culture that must be understood and involved if changes are to be more than cosmetic" (p. 16). Rather than starting with an explicit theoretical framework, affirming or disproving hypothesizes and/or theories, Goodlad and his team claimed that they entered all schools with open minds not specifying specific trends and themes. Goodlad stated, "the understanding of schools is prerequisite to improving them" (p. 17).

Funded by more than a dozen philanthropic foundations, Goodlad (2004) sought to incorporate maximum diversity and representativeness. Through questionnaires, interviews, observation forms (which were scanned and tallied by computers), Goodlad and 20 trained data collectors remained in the communities they researched for almost a month, amassing large amounts of data about each school observed (Goodlad, 2004). Figure 4 illustrates the study's participants.
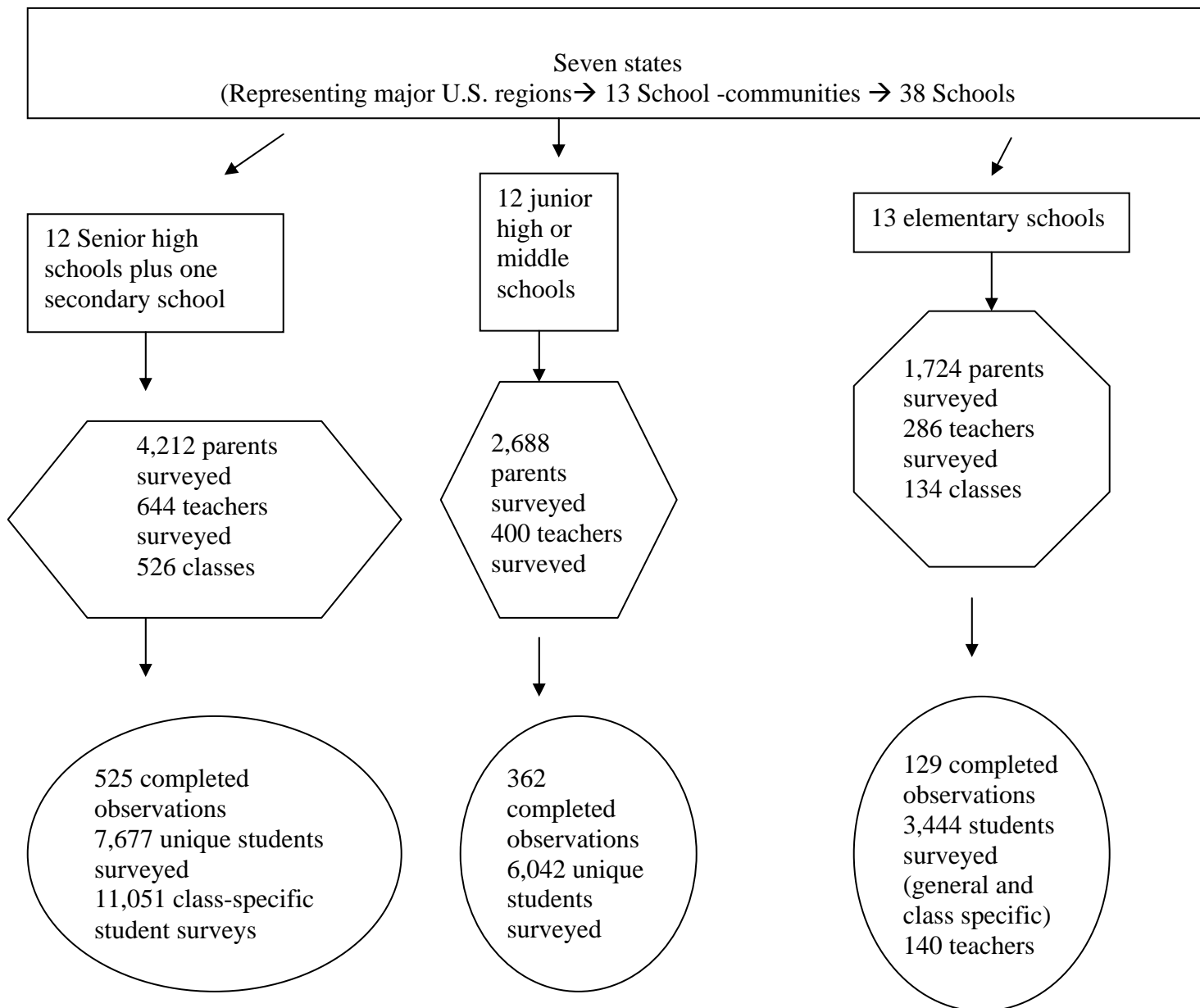
*Figure 4. Study's Participants and Methods, Goodlad (2004).

The findings described in figure 5 (pertinent to the relationship of democratic

principles and student engagement) stemmed from Goodlad's hypothesized that students

are not engaged in schooling. Stemming from such a platform, the following diagram

describes the themes uncovered in the study. Goodlad stated, "Each theme derives its

qualities, for better or for worse, from the way several related commonplaces manifest themselves, as perceived by the several groups of respondents and observers" (p. 29).

Relevance (in the lives of students):
-Students have no choice
-School provides a compulsory setting where students seek to satisfy their interests

School functions:
-Babysitting
-Job preparation
-Intellectual development

Satisfaction:
-How students perceive their situation(s) within schools, in addition to the perceptions of principles, teachers and parents.

Implicit curriculum:
-Schools implicitly teach values represented in the larger society.

*Figure 5. Research Findings (Goodlad, 2004)

Other themes discussed in the study: how teachers teach, the circumstances surrounding teaching, the curriculum, distribution of resources for learning, need for data, school as a unit for improvement and caring.

To better illustrate the responses to student engagement, when asked to rate the seriousness of a list of problems for their individual schools (1= not a problem, 2=minor problem, 3=major problem) all participants listed student interest as a high level of intensity (students= mean score 2.0), (teachers=mean score 2.3) and (parents= mean score 2.0) (Goodlad, 2004). Moreover, Goodlad found that the percentage of parents perceiving students not caring about learning increased as students got older.

In terms of cooperative learning, Goodlad (2004) found that students, in fact, achieved alone, regardless of group setting. In other words, students engaged in

individual activities, but not as a collaborative group. Not only did students perform individually, they also had few decisions about their own learning process. Specifically, Goodlad found that the teacher was the central figure in determining activities, in addition to the tone, organization, instruction, etc. Goodlad stated, "Relatively rarely are students actively engaged in learning directly from one another or in initiating processes of interaction with teachers. When students work in smaller groups, they usually are doing the same things side by side, and these things tend to be determined by the teacher" (124). Goodlad also found that when students individually performed, rather than in a collaborative group, they engaged in a narrow and uncritical range of classroom activities such as listening to teacher instructions and writing down answers to questions. Lastly, the implications of this study (Goodlad, 2004) were educational goals stemmed from the above themes, and those goals were used as guidelines for government request for improving schools.

Next, it is important to consider the study's strengths and weaknesses. Clearly, the massive funding, details and time spent on investigating schools and their populace, brought a certain amount of credit to Goodlad's work (2004). In the beginning of his book, Goodlad stated, "So far as I am able to determine, no other single study has made detailed observations of over 1,000 classrooms" (18). Goodlad's deliberate efforts of sampling diverse schools (urban, rural, etc.) made his findings more indicative of inner workings of American public school in general. On the other hand, because his sample size was so large and diverse, his themes became less generalizable to schools in specific regions, as it became difficult to decipher if themes actually reflected a certain *type* of school or if in fact they appeared across differences.

It is also important note that the study purposely avoided the wealthiest suburban school districts, but included the poorest urban schools (Goodlad, 2004). As a result, the school selection could have influence the data and findings. Despite the fact that Goodlad did not set out to generalize to *all* schools, he did aim to develop overlapping themes embedded within the public school system.

Looking specifically at the effects of teacher democratic practices, the implications from cooperative learning are twofold. First, Goodlad (2004) clearly depicted schools as lacking in cooperative community centered education. Goodlad's team observed roughly 75 % of class time being devoted to instruction and nearly 70% of that instruction was verbal, most always from teacher to student(s) (Goodlad, 2004). So what's the point of cooperative group work? Goodlad concluded that students participating in cooperative group work might actually be a cover-up for traditional linear education. In other words, just because students were physically positioned as a group does not necessarily mean they were cooperating with each other on a unified task. Second, and as a result, Goodlad and his study alluded to the purposeful and explicit education of group skills, in addition to the assessments of group and individual work, not only as a method to engage students, but also as a means to a democracy.

Similarly amassing a large research study, Schmuck and Schmuck (1990) drove 9,452 miles to visit 25 school districts within 21 states, examining citizenship, collaboration, student voice, and cooperative learning, while studying the democratic participation of small-town schools. The asked the question of how democratic principles effect academic participation in a small town communities. Such question is important to this paper because it is unique in looking specifically at small towns, and

participation can be seen as a form of engagement. To help answer their question,

Schmuck and Schmuck (1990) randomly chose school districts (K-12) in towns where

student bodies ranged from 300-3,000 students. Asking questions about student

participation, democratic relationships within schools and administrative involvement,

they interviewed and observed (1) superintendents (2) principals (3) board members (4)

teachers (5) custodians (6) counselors (7) clergy (8) citizens and (9) students (K-12).

They concluded that small town schools engaged virtually everyone and provided

a common culture for 5-18 year-olds. They found small-town schools to also bring

citizens together to develop a feeling of community identity. Although the students

interviewed were excited about extracurricular activities, they found schoolwork boring

(Schmuck & Schmuck, 1990). The authors saw few classroom discussions, despite most

classrooms containing less than 20 students. Moreover, they found little to no student

responsibility in their learning. The researchers stated, "in general, we found that

students, although they were involved in many activities, had no influence or power"

(p.15). Not only did students have little to no voice in their education, teachers also felt

the lack of collaboration. Of the meetings Schmuck and Schmuck (1990) observed, the

principals were always in control and spoke more than 75% of the time.

Overwhelmingly, they found kindergarteners to be the most engaged students. They

reported that 80% of classroom talk came from the teacher, and that teachers were

predominantly standing in front of classroom facing rows of students. They also found

little diversity. If students were placed in groups they were done so by ability levels,

particularly in the younger grades (1-4) and in reading and math. Implications discussed

were that the strategy of classroom discussion stemmed engagement, and that classroom

layout had an impact on student engagement (participation). Ultimately, Schmuck and Schmuck found that small-town American public schools were not fostering democratic participation through democratic teaching practices, and, as a result, students were not engaged in classroom content.

Like many of the mentioned studies, diversity played a role in the facilitation of democratic principles such as cooperative learning. Schmuck and Schmuck (1990) stated that they found only one high school that took advantage of cooperation and collaboration. Transitioned from a segregated school in the 1970s to a racially integrated school, the researchers noted that not only did the students in that school have a voice in their own education, but also a multi-racial and diverse student body worked together on student policies and programs. In contrast, most small towns composed of like-minded and similarly cultured individuals. Moreover, the authors did not mention the importance of age to their study (Schmuck & Schmuck, 1990). Do students need to be at a certain age and have particular cognitive makeup in order to successfully collaborate and cooperate? Schmuck & Schmuck found that kindergarteners were overwhelmingly more democratic in the classroom practices than upper class students.   However, were they actually collaborating, or were they simply physically interacting rather than sitting in desks in rows? Considering the difference between appearance and actual cooperation, the authors did not consider if participants had the schema formations and abilities to democratically participate. This consideration is necessary to validity of their findings.

Also looking at learner-centered educational techniques such as cooperative learning, Vega and Tayler (2005) asked the questions: What are appropriate democratic classroom practices for content-laden courses? What pedagogical strategies employed

students as active learners? Exploring their question, the authors gathered participants at

a Leadership Association, a program at Montclair State University. The two-week

seminar was founded on the pedagogical principles of John Goodlad (1992, 1994, 2000).

The participants consisted of teachers in the public school systems, university-level

educators in the arts and sciences, and teacher education faculty members. Vega &

Taylor surveyed 127 past participants in the Leadership Associates program as a means

to identifying successful teaching and learning practices. However, the article focused

solely on 30 respondents (K-12 teachers (n=16), university level teachers (n=14)).

Participants were asked to rate their effectiveness of innovative pedagogy. The

teaching/learning survey practices selected by the participants were the following: peer

evaluation, small-group practices, and community of inquiry. Overall, the authors

reported that the respondents generally selected teaching practices that they have used

and refined throughout their time in the classroom (90 percent used the techniques for

more than a year) (Vega & Tayler, 2005). Table 7 gives descriptions of the above

teaching strategies.

Peer evaluation	o Assignments initially completed individually then discussed with peer(s). Individual assignment examples given: Log exchange and "Math Pals." o Promotes interaction and dialogue o Challenge: student shyness and difficulty of ensuring constructive responses.
Small-group learning practices	o Assignments completed as a group o Students take on unique roles o Reflective of real-life multidisciplinary groups o Examples given: web-based discussions, group activities based on readings, group essays, problem-solving groups. o Issues: time, technology availability, diversity in student skill levels, absent students
Community of inquiry	o Cooperative inquiry, investigation and dialogue (Sharp, 1987) o Required students to think and participate more, in addition to taking control of their own learning. o Real-life approach to solving a problem o Examples given: computer programmers' group, perspective taking, cooking with ESL, inquiry-based discussion in biology, role-play in conflict resolution o Challenges: difficult transition from a structured classroom setting, assessment, full participation, time, student maturity, longevity of the practice and administrative support

*Table 7. Definition of Teaching Strategies, Vega & Taylor (2005).

Vega and Taylor (2005) found the above practices were transferable across

disciplines and educational levels. They also found that the results provided interesting

possibilities for courses that embodied diverse student populations. There were some

unexplored issues within these conclusions, however. First of all, the above practices

may be transferable, but at what success rate? Consider Glaser-Zikuda et al, (2005) study

on cooperative learning. They reported higher success rates with group work conducted

in German classes in comparison to physics classes. Therefore, further research may need to be conducted in order to decipher the effectiveness of such learner-centered practices between the arts and the sciences.

Despite the authors surveying a tripartite selection of participants, they only concluded with a sample size of 30 respondents. The authors generalizing claims, which incorporated all disciplines and all educational levels, would have been strengthened with a larger sample size that represented diverse demographics. Lastly, Vega and Taylor (2005) failed to discuss assessments used to support their claims. For example, they stated that a community of inquiry resulted in increased thinking and participating among students, in comparison to a teacher-centered classroom, but failed to specify how they assessed student thinking. They also did not incorporate both individual and group assessments. In order to respond to a variety of students learning types, in addition to a diversity of social skills, it is important find multiple means of assessment.

Also looking at how teaching methods and student-centered classrooms encourage student engagement, Girgin and Stevens (2005) followed two college professors at a private and traditional Turkish university and documented their innovative classroom instruction, in addition to student responses to instruction and assessment. They asked the questions: what are student-centered activities that encourage in-class participation? What assessment practices encourage in-class participation? What are student responses to such activities and assessment practices? The authors defined student-centered classrooms as classrooms where discussion, debate and critical analysis are practiced and build the skills necessary to participate in a democracy (Girgin & Stevens, 2005).

To acquire their data, Girgin and Stevens (2005) had students fill out questionnaires. Student responses to student-centered classrooms (in-class participation) came from mid-term class evaluations, responses to the end-of-term quiz, and two items on the formal student course evaluations. The in-progress evaluations completed in the middle of the term asked the following open-ended questions: (a) what works in this class for you? (b) What does not work in this class for you? (c) What suggestions do you have to make it better for your learning? (d) What should I know about you as a learner that will help you learn better? 64 students filled out this survey and 61% indicated that discussions were the best part of the course. In addition, 21 students responded said that the positive class environment, open to discussion, ideas and questions, worked best (Girgin & Stevens, 2005).

In the end of the year quiz one of the teachers asked students to name three things done in class that helped you actively and better engage in learning. 76 percent mentioned class discussions, and 50 percent referred to small-group discussions. The course evaluations given at the end of the term revealed a dichotomy between the teachers in this study compared to other teachers in the university. Specifically, the teachers observed received higher grading (Likert scale) than the faculty average. Ultimately, Girgin & Stevens (2005) concluded the majority of students valued the discussions and student-centered classrooms, despite resistance at the beginning.

Girgin and Stevens (2005) found the democratic classroom practices listed in Table 8 to foster in-class participation.

Activity	Description	Advantages
Think-pair-share	Professor asks the class a question. Students think about an answer. Students pair with neighbor to discuss. Students share with the entire class	Students both think and talk
Discussion roles	Students receive cards with discussion roles. Students practice new roles at least once during the discussion	Students can see the variety of roles one can play in a discussion.
Fishbowl	Class breaks up into two circles (one inside of the other). Inner circle discusses topic. Outer circle can pass notes to inner circle to add to discussion or can observe.	Students can observe how a discussion works.
Case Studies	Students read cases from a textbook. Students work in small groups of three or four to discuss the case. Whole class discussion follows	Student must read the text first before discussing
Student presentation with class discussion	Students prepare a term paper in pairs Students give class presentation. Class discussion to follow.	Students learn about facilitation of discussion on content topic.

* Table 8. Democratic Classroom Strategies, Girgin & Stevens (2005).

Critiquing this study, it is first important to notice the small sample size. The participants consisted of two classrooms of students and two teachers. Moreover, the research was conducted at a private university. What were the socioeconomic statuses of the students and how did they contribute to their willingness to participate? In addition, not all the teaching strategies derived from their research elicited student participation.

Merely two (think-pair-share and discussion roles) out of the four strategies required *all*

students to participate in a discussion. The remaining activities, however, allowed

students to observe, and quite possibly allowed room for extroverted students to take over

discussions.

A noticeably confounding variable was the fact that the names of students were

on quizzes that were used for assessment. As a result, students might have been less

likely to assess negatively, as not to look bad in the eyes of their teacher(s). Moreover,

the course evaluations, which were also used as assessment, were given at the end of the

term; therefore students might have not taken the questions seriously. In addition, details

surrounding the in-class participation written criteria were limited. That is, the written

criteria sheets might not have meant the same to each student, which leaves room for

confusion and misunderstandings, in particular when dealing with such a relative and

abstract concept as participation.

Last, it is essential to examine the role of culture and nationality. As stated in the

study, Turkish students were not accustomed to such social constructivist pedagogies

(transmission view of teaching). Therefore, it is important to consider the role of culture

when critiquing Western social norms such as discussion and group work. Are some

students not only unaccustomed, but also uncomfortable participating actively? After all,

Turkey is a young democracy, transitioning from a one-party country post 1950. How

did such a principle of correspondence affect the participants' schemata about social

constructivist teaching methods and, in turn, how did such schemata affect this study?

Problem posing and problem solving can be seen as core qualities and strategies

of democratic teaching. In a study that also examined the benefits and social

constructivist teaching procedures derived from classroom activities in student problem posing, Cunningham (2004) asked if mathematical problem posing resulted in students being engaged and taking on the responsibility needed to contribute to their knowledge. Initially, Cunningham argued that students were often exposed to instruction that required little student input; as a result, the teacher was incessantly relied upon for problem solving, which forced students to serve as mere listeners and have little role in constructing their own knowledge. Student problem solving, however could give students an enhanced sense of ownership and engagement in their education, in addition to enhancing student reasoning and reflection skills. (Cunningham, 2004).

Cunningham observed a community college math course where students worked in small groups of three or four. To encourage problem solving beyond their normal daily work, the instructor complimented story problems by having the students write their own question and solution using or modifying the information given in the problem. Following their writing, students had discussions around their problem posing and problem solving.

Through observation and interview, Cunningham (2004) ultimately concluded the following, "Overall, the activity provided the students with the opportunity to problem solve, as they accepted the increased responsibility for generating their own problems and solutions. This ownership of the problems resulted in a highly visible level of engagement and curiosity, as well as enthusiasm" (p. 89).

Though he found the above process to successfully bring about student engagement, Cunningham (2004) also noted obstacles. For instance, he stated that time was an issue. Oftentimes, students would spend an entire two hours of class time

working on one problem. Moreover, he found that some students' initial sense of efficacy was poor. In other words, when a problem was first presented in class several students expressed doubt that they would not be able to solve the problem Cunningham (2004).

Clearly, group work extracts group dynamics. However, Cunningham (2004) failed to elaborate on how groups where chosen, group guidelines, student familiarity with group skills, etc. Such information is important when examining the study's findings. In addition to student discussion, the teaching strategy of cooperation can be transferred to forms of students assessments like test taking. In a four-year case study written up in 1999, Russo (student) and Warren (teacher) examined and reported on the effects of the democratic teaching strategy of collaborative test taking on student engagement. Collaborative test taking was seen as students being allowed to work together on tests. The authors found that such joint test taking could help reduce anxiety levels, build peer cooperation, and aid in the development of teamwork skills (Russo & Warren, 1999). The researchers used methods of tracking student test scores for four years, as well as observations.

Collaborative group testing was administered in a college composition classes. After observations during tests, the teacher came up with the following Collaborative Testing Guideline in Table 9 to best support student achievement and engagement (Russo & Warren, 1999).

Teacher chose appropriate material for collaboration (e.g., essay exams would not work)
Teacher introduced the concept of collaboration on exams at the beginning of the semester and reinforced it during test reviews.
Teacher allowed students ample time throughout the semester to interact and get to know one another.
Teacher made sure students understand that wrong answers can come from other students, as well as correct ones.
Teacher stressed how the technique of collaboration would be useful in nonacademic settings.
Once exams had been graded and returned, teacher allowed feedback and discussion form all students.

*Table 9. Collaborative Testing Guidelines, Russo & Warren (1999):

The study described the below results. After comparing the average noncollaborative test grades from previous semesters (1992-1993) with the average collaborative grades (from 1994 to 1997), the teacher found that the average grade increased by .60 in English 101 and 1.43 in English 102 (Russo & Warren, 1999). The teacher, therefore, concluded that collaborative testing could be an effective educational tool in any course or discipline. She continued to argue that it is a tool for students to manage, retrieve and apply information, in addition to working cooperatively to solve problems and develop cooperation skills that were valuable outside of the classroom (Russo & Warren, 1999). The student ultimately concluded the study by stating, "The final product of any education is not just how much of what you have been taught that you can remember and apply to basic principles, but also how well you can participate in a given society" (p.21).

Like Cunningham (2004) and Girgin and Stevens (2005), the study (Russo & Warren, 1999) consisted of few participants, only providing the experiences and interpretations of two individuals. Moreover, the authors stated that collaborative testing was not required though strongly recommended. Interestingly enough, mainly international students from Asian rim countries chose not to collaborate. When

questioned, most students said they chose not to collaborate because they felt awkward sharing answers (Russo & Warren, 1999). Such feedback demands the recognition of cultural differences within academia. Clearly, not all students were engaged in the new form of test taking. Collaboration is necessary within a democracy, but should such a Western dogma be forced on international students? Lastly, Russo and Warren (1999) showed no experience participating in collaborative test taking outside of English courses. For their generalizations to be founded, they needed to either conduct further research or pull experiences from other researchers outside their content area.

Similarly, Meinster and Rose (1993) researched the effects of the strategy of cooperative testing on student performance and engagement. Like Russo and Warren (1999), the authors believed that cooperative learning was necessary in preparing students for social skills required in the work force. Contrary to Russo and Warren, Meinster and Rose argued that the simple exchange of information between individuals in a group would have little permanent effects. Instead, it is necessary to facilitate peer interactions. In other words, in addition to agreements, interactions must involve disagreements, questions and explanations (Meinster & Rose, 1993).

Meinster and Rose (1993) studied forty undergraduate students in two sections of developmental psychology. Comparing results from the previous subjects, the authors also looked at a third section of students taking developmental psychology that administered to traditional testing methods. They facilitated four multiple-choice tests containing 50 questions. Each student had their own answer sheet that not only included their answers, but also a section that asked them to rate their anxiety (nervousness) and

expected performance (how well they thought they would perform on the test), and their test style (traditional vs. collaborative) all on a 5-point scale.

The procedure consisted of the teacher explaining to the students the process of collaborative exams. Next, students were allowed to pick their exam partners (they were also allowed to change their partners for the second exam). Moreover, students were not required to participate. 20% chose not to participate in one section (7 out of 34), and 35% (9 out of 24) chose not to participate in the other section (Meinster & Rose, 1993). The study is important to this paper because it looked at the strategy of cooperative learning on student engagement, while considering students' internal emotions.

Meinster and Rose (1993) found the following results:

1.   Compared to individual testing, cooperative testing demonstrated a clear advantage ($p < .01$).

2.   There was a dichotomy of responses between the two groups. As a result, an analysis was conducted to investigate patterns in test scores. The results indicated a difference in the magnitude of cooperative testing effects ($p < .01$). In other words, group A showed no significant variation in performance; whereas, group B show a significant better performance on cooperative testing versus individual testing.

3.   Students spent more time working on tests collaboratively compared to individually ($p < .01$).

4.   There was no difference in anxiety levels when comparing the two types of tests.

5.   There was a strong student preference for cooperative testing ($p < .001$)

6.   Performance expectations varied among students and classes ($p < .05$).

The results indicated that not all of the students benefited equally from the switch to collaborative group testing. The differences between the two classes, such as order of testing and subject variables, could have contributed to this dichotomy. Moreover, group B consisted of older individuals, which might have suggested that age was an important variable in determining students' ability to cooperate. The data suggested that non-traditional students benefited more from working cooperatively. The authors (Meinster & Rose, 1993) hypothesized that older students engaged in more task relevant interactions because they more experienced in school. The only cross group consistent finding was that students liked collaborative testing, in addition to feeling that the testing style helped their performance.

Critiquing this study, there were many confounding variables that might have affected the study's results. First of all, the authors failed to investigate student behaviors that contributed to particular social skills. For example, are some students prone to 'social loafing'? Would some extroverted students have naturally taken advantage of other students, regardless of their individual content knowledge? It is also important to consider that the students were not required to participate in collaborative group testing. Did such a non-requirement only lead to those who were socially and knowledgeably apt to participate and, as a result, encouraged others to "fall between the cracks"? Not to mention, students were able to pick their own test partners. By doing so, were they predisposed to succeed? In other words, did they choose those who would help them succeed? Did their partners influence the answer sheet section where they had to answer questions about anxiety, performed and preferred testing? Was talking allowed when

students filled out the section? In addition, was is important to consider the length of time required for a collaborative test.   The authors (Meinster & Rose, 1993) administered tests that only lasted 20 minutes of 50-minute periods. What would have been the results had the test lasted the entire class period? Lastly, was it important to consider the role of self-efficacy in this study? The most prominent results, as stated earlier, were that the students mostly answered that they preferred cooperative testing, not only for the process, but also for the stake in their performance.

Also examining partner testing, Ley (1995) researched how a cooperative learning strategy affected student perception of learning. Specifically, she studied developmental college students and their reactions to partner testing. Ley's framework consisted of the idea that many students (in particular, developmental students) were often unmotivated and disengaged in learning, as a result of instructional techniques. She argued that the use of cooperative learning (in this case partner testing) could encourage all student learning, not just developmental students. Partner testing provided the opportunity for each student to take an examination with a partner. Ley argued that any form of testing could be used.

Partner testing was administered in two postsecondary institutions and in two classrooms. Students were aware at the beginning of the semester that they would have the option to test with a partner (following their first individual test). The instructors explained that students could partner test in whatever manner they chose (i.e. work together on each section, divide the test, or alternate). The partners first had discussions about the positive and negative possibilities of partner testing then signed a contract

indicating that they agreed to work as partners. Over three-fourths of the students agreed to take the partner tests (Ley, 1995).

Ley (1995) found that while partner tests were in progress, students were thinking aloud, engaging in problem-solving, and debating possible answers. She noted that there was an additional finding of responsibility, as students relied on each other for input. She also argued that partner testing provided experience that students could use beyond the classroom (Ley, 1995).

Ley (1995) noted the following disadvantages to partner test taking: (1) the classroom must have movable chairs to be separated from the students not taking partner tests. (2) Partners must be able to discuss their answers while maintaining quiet, as not to disturb those individually testing. (3) Partner testing most likely takes longer to finish compared to individual testing.

Students who participated in partner testing reported overwhelming positive results. Those who chose not to participate indicated that they a) did not want to depend on someone else, and b) did not want to let someone else down. However, none of the partner test scores were below the scores for the first test taken at the beginning of the semester.

A particular strength of the above study is that it recognized alternative learning styles. An overwhelming amount of research has generalized findings to the 'average student.' Ley (1995) also recognized that students might have been more apt to participate in partner testing had the instructor provided more time for student social interaction at the beginning of the year.

However, a weakness of the study is that Ley (1995) failed to consider cultural implications for student behavior and decisions. In other words, what are the underlying reasons why students did not choose to participate in partner testing? Perhaps their culture(s) taught them to act and learn independently. Regardless, it is important to consider the diversity and backgrounds of student bodies when implementing teaching strategies. Moreover, Ley reported that partner test students reported positive experiences, but did they learn? Despite the students having to turn in their individual test sheets, they were still able to collaborate, which made it difficult to individually assess learning.

Oliver and Omari (1998) also looked at cooperative learning and its effects on student engagement, specifically researching collaborative computer-based learning environments. They found that such environments were important factors in student engagement, specifically encouraging cooperation, reflection and articulation.

Oliver and Omari (1998) researched methodology that consisted of Web-based instructional periods, which created and incorporated open-ended and inquiry-based collaborative activities. Sixty students enrolled in an experimental course that was based on lectures, computer-based workshops, and student collaboration on web design. The class was divided into three random groups and transcriptions were created of the discussions between the students. Their conversations were then tabulated and classified as a way to detect overarching themes. They found that collaborative work fully engaged students and elicited four forms of interaction among students, which are described in Table 10 (Oliver & Omari, 1998).

Type of interaction	Description	Example
Social	Students discussed elements of a social nature	• Student 1: 'What course are you studying?' • Student 2: 'Multimedia and communications' • Student 1: 'Does that meant you know my friend John Smith?'
Procedural	Students discussed matters relating to procedures and steps associated with the learning materials and WWW browser.	• Student 1: 'What do we need to do here?' • Student 2: 'I think we should go to the first screen and read the instructions.' • Student 1: 'Okay, I think you click here to do that.'
Expository	Students exchanged facts and knowledge with little elaboration	• Student 1: 'The screen design here is quite good.' • Student 2: 'I like the color and the images.' • Student 1: 'The text is well laid out and easy to read.' • Student 2: 'The format is a bit wide.'
Cognitive	Students exchanged and demonstrated critical thinking and reflection, and their discussions lead to further knowledge.	• Student 1: 'Why is the home page better than the previous?' • Student 2: 'It's much clearer and spacious.' • Student 1: 'The space makes the page less cluttered and the image is less busy.' • Student 2: Images make the links more apparent don't they?'

*Table 10. Types of Interaction Between Students Including Descriptions and Examples, Oliver & Omari (1998)

Ultimately, Oliver and Omari (1998) found that their study provided support for collaborative working. They stated, "In all instances we found that the groups elaborated on the information and content that they accessed and each contributed to the others' learning" (p. 281).

When reviewing this study, it is important to consider the year it was conducted. The Internet was relatively new to students in 1998. If the study was administered nowadays, would the results be altered? After all, the authors ran into the issue of time, as few students completed their work on time. Was this roadblock the result of an actual lack of time, or was it reflective of the newness of the Internet? If the later were the case, the results would mostly likely not be generalizable. Moreover, as stated earlier, groups were chosen randomly. Often the interactions of students lead to behavioral problems. Did the instructors teach group work skills? If students were allowed to choose their work partners, would they have been more comfortable and, as a result, engaged even further in their tasks?

The issue of content arises in many research studies surrounding collaborative learning. Because the study focused on collaboration, was the content surrounding the tasks sacrificed? Oliver and Omari (1998) stated, "the actual WWW materials themselves may be more suited to supporting interactive learning activities than conveying content and information" (p.264). It is, therefore, essential to consider the implications of group work and its affects on actually student learning.

In addition to testing and group work, Cooper, Horn and Strahn (2005) saw collaboration as an important factor contributing to student engagement. Specifically, they examined the ways seven high school English teachers promoted higher levels of self-regulation and students' responses to their efforts. Cooper et al. came from the position that many teachers believed that high school students were simply not motivated, and that students performed better when they took on more responsibility for their learning. Their theoretical framework stemmed from social cognitive theory where

interdependent relationships among cognitive, behavioral, and environmental factors help improve self-regulation. They reported that students who were skilled at self-regulation reported having mastery goals instead of performance goals and, as a result, saw the intrinsic value of learning (Zimmerman, 1998). Moreover, those students became more aware of their feelings of self-efficacy.

The study analyzed the responses of both students and teachers to an intervention program that was designed to improve the quality of the classroom environment and student engagement. The study consisted of seven English teachers and 42 students. Each teacher implemented the following process or intervention (Cooper at. el, 2005):

- Teachers handed out permissions slips to all students

- Students were divided by ability level based on their last End- of-Course English scores

- Teachers met weekly to work as a group on writing quiz and homework questions

- Students received higher-order thinking questions (Bloom and Marzano models of thinking), which were guiding questions throughout their reading

- Students completed a homework log after completing their assignments, which tracked their successes and struggles

- Students met in small groups or had full class discussions of the reading questions.

- Students were given weekly quizzes that contained rewritten guided reading questions.

- Students were asked to estimate how well they thought they did on the quizzes and then compare their estimation to their given grade.

Relevant to this paper, Cooper et al. (2005) found that the above processes supported democratic practices, specifically student collaboration and student engagement. Whether between teachers, students, or teacher to student, collaborating on a task helped to attain set goals and stimulate engagement. One student commented, "whenever we read as a class out loud I think it's interesting, but to me, it's pretty boring when I read individually" (p.17). Moreover, 30 of the 42 students noted in their questionnaires that the teachers helped them to set goals and also recognized that their teachers contributed to their learning. Thirty-three students noted advantages of teacher assistance, in-class reading aloud, and discussions (Cooper at. el, 2005). In addition, the authors argued that challenging tasks that required critical thinking also encouraged engagement: "Teachers help students to become self-regulated learners by offering challenging tasks. Tasks that are challenging and interesting to students will stimulate student engagement" (p.12). All in all, student responses to the above intervention program were generally positive.

A significant strength of this study is the variation of perspective. The authors (Cooper et al, 2005) interviewed and observed both teachers and students. Moreover unlike a majority of the students examined, this study did not rely on grades to determine engagement. Cooper et al. (2005) stated, "Grades are not necessarily the best record because they are global and inconsistent" (p.12) On the other hand, the study initially separated students by ability levels. This form of tracking resulted in segregation of students depending on prior test results, which, many have argued, is undemocratic in nature. In addition, regardless of the collaboration between students and teacher, the teacher remained the sole body of knowledge. That is, learning still occurred in a linear

fashion, as the teacher mostly aided students rather than facilitated learning classroom wide. It is also important to consider how the program would sustain over a long period of time, as the intervention was implemented for only a semester.

Summary

The above research in student engagement embodied an array of strategies and perspectives to consider when evaluating the question: what are effective strategies to support student engagement and learning? Specifically, the studies reviewed focused on the democratic teaching strategies of student choice, promoting student self-efficacy, utilizing diversity within the classroom, and cooperative and collaborative teaching methods.

Findings generally indicated that there is a strong correlation between the implementation of student choice, self-efficacy, diversity, cooperative and collaborative learning and student engagement. As noted in the introduction, student engagement can take on many forms. The research presented showed engagement to look like some of the following: academic scores, visible interest in a task, oral demonstration of interest, on-task behavior, increased achievement, school involvement, increased self-confidence, and student collaborations.

The concluding section focuses on (1) relating the historical perspectives with the overarching research question, (2) elaborating on classrooms strategies linked to the research discussed, and (3) suggestions for future research.

CHAPTER FOUR: CONCLUSIONS

The literature reviewed showed many angles to addressing the problem of student

disengagement. The Introduction to this paper stated that an ideal learning environment

was seen as fostering student engagement, valuing diversity, promoting social

responsibility, encouraging discussion and debate, recognizing accomplishments, and

fostering a sense of belonging. Such a classroom can be seen as embodying supportive

teaching strategies that have a positive effect on student engagement. This paper

concludes by summarizing research explored in the previous chapter, followed by

implications for teacher practice, ending with suggestions for future research.

Summary of Research:

Student Choice and Self-Efficacy

The majority of research surrounding the effects of student choice and self-

efficacy on engagement showed that the more students were given the freedom of choice,

the more they developed positive self-efficacy, and, as a result, the more they were

engaged in the learning process. In 1988 Novak argued that classrooms should include

individuals that share decisions whenever possible, and involve all members of the

community in decision-making. He stated, "People who are excluded from decision

making soon become passive, lethargic, and even hostile to those who deny them

opportunities to make choices that influence their lives" (p. 12). Moreover, Shandloff

(1978) said that students would become involved if they selected their own topics, and

they become engaged to grow in responsibility for their individual learning if they could

express their interests through choice. All in all, researched showed that teachers should nurture their student's agency (self-efficacy) as a means to evoke student engagement.

Summary of Research:

Cooperative and Collaborative Learning

Research demonstrated that cooperative and collaborative learning strategies helped remedy student disengagement by building student confidence, responsibility, social skills, social awareness, and exposure to diversity. However, research also showed that there are many considerations a teacher must be aware of before implementing such strategies.

First discussed by Fiechtner & Davis (1992), Goodsell, Maher, & Tinto (1992), and Sheridan (1989), Ley (1995) found the following guidelines necessary for cooperative and collaborative learning: student responsibility, individual accountability, heterogeneous grouping, teacher-facilitator role, social skill development guidelines, and student-student verbal problem solving.

On the other hand, research also showed that certain points should be avoided in cooperative and collaborative learning strategies. For example, Fiechtner & Davis (1992) found that the strategies of cooperative and collaborative learning should avoid the following: allowing students to form homogenous groups, establishing very small groups, minimizing the importance of group work skills, and quantifying assignments. Regardless of the above guidelines and points to avoid, research demonstrated that cooperative and collaborative learning engages students. The next section explores implications derived from the research, as well suggestions for future research.

Implications for Teacher Practice

Several implications for teacher practice arise when considering effective strategies to support student engagement and learning? All implications discussed below are supported by research in chapter three; however, some strategies need further research to validate their effectiveness, and they are noted accordingly.

Studying student choice and its effects on student engagement, research found that a teacher should give students choices in their assignments and tasks as a way to increase their engagement in learning. However, such a claim does not go without further investigation. Flowerday & Schraw (2003) found positive results when giving students choice, yet those results were only short-term. Therefore, further research is need in the looking at the long-term effects of student choice on student engagement. In addition, further research is needed in the studying the variance of choice on student engagement. How much choice is enough to elicit student engagement?

Research also demonstrated that a heightened sense of student self-efficacy leads to student engagement. Green & Miller (2004) found that when student self-efficacy was increased, and in turn their engagement, students found personal value in the task at hand. Therefore, it can be implied that a teacher can increase student engagement by creating assignments that reflect the values of individual students. Further research is needed, however, on the practical distribution of such assignments, and the possible differentiated instruction needed to educe value in each student.

Cooperative and collaborative teaching strategies where overwhelming found to increase student engagement. It is important to note that cooperative and collaborative teaching strategies look different depending on the student body, the teacher's desired

outcome, as well as the content area. All in all, the strategies relied on participants working together towards a common goal. Sigel (2005) found that cooperative learning helped shift the responsibility of learning from the teacher to students and, as a result, engaged students by having them take ownership of their learning. Siegel also found cooperative learning to increase student academic achievement. However, like with most of the research studies reviewed in Chapter Three, multiple forms of assessment where not given to students when studying their achievement. Therefore, further research is needed to study the effects of not only cooperative and collaborative teaching strategies, but all strategies previously presented on student engagement while administering multiple forms of assessments.

Diversity took on many forms in Chapter Three, from the detracking of students, to classroom content. Most of the studies presented found that diversity could be used as a strategy to support student engagement. Looking at diverse socioeconomic and cultural backgrounds, Malaney & Berger (2004) found a positive correlation between students who were exposed to peers from different socioeconomic and cultural backgrounds, and/or participated in diversity workshops, and their engagement in seeking diversity while in school. Therefore, it can be inferred that explicitly teaching for and about diversity can not only help students engage in their learning, but can also help students better understand their peers. Most of the research reviewed contained older participants; therefore, further research in diversity and its effects on student engagement needs to include elementary aged students.

Summary

The ideal student-learning environment described in the introduction considers the classroom environment and its effects on students, rather than the effects of school as an institution. One might argue, that in order to increase student engagement across the board, change needs to occur from the outside-in (school then the classroom) rather than from the inside-out (the classroom then school). It is important to consider that school and the classroom can work in tandem, implementing supportive strategies to increase student engagement. Conducting his research on schools nation-wide, Goodlad (2004) came up with the "'zenith'" in expectations for schools. The below points are suggestions based on his findings.

- Reduce inequality among individuals and groups

- Improve economy and economic opportunity by raising the nations' supply of intelligence and skill

- Spread capacity for personal fulfillment by developing talents, skills, and creative energies

- Diffuse ideals of a liberal education

- Reduce alienation and mistrust while building a new sense of community among people of similar education and similar values

- Reduce prejudice and misunderstanding by facilitating contact among diverse groups

- Improve the quality of civic and political life.

Lastly, the problem of disengagement cannot be tackled through a linear approach, as there are innumerable reasons for a student to become disengaged in his or

her learning. A teacher cannot easily diagnose, for example, why a student refuses to pay attention in class, or why a student fails to complete assignments. Rather, student disengagement can be addressed through teaching strategies that aim to support student engagement—providing students choice, aiding student self-efficacy, teaching for and about diversity, and implementing collaborative and cooperative learning. Employing such strategies are steps toward solving the problem of student disengagement.

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