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Jack Gelfand
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The Student Scholarly and Creative Activity subcommittee of the Scholarly and Creative Activity Committee at Oswego is proud to present the second *Quest Proceedings.* This issue contains papers and posters presented at Quest 2009. The *Proceedings* represent an assortment of papers reflecting the scholarly and creative activities of our students in the many departments across campus. Examples include programs such as Art, Biology, Curriculum and Instruction, Earth Sciences, Philosophy, and Women's Studies. Also presented here are the papers receiving the Bill Bosch Quest Poster Award and the Helen Bohmer Daly Quest Award for Undergraduate Student Scientific Research. We strongly encourage our students from other departments to submit their best work to be published in future issues of the *Proceedings.* This will be the last issue to be published by Student SCAC, and future issues will be published by the Quest and Publicity subcommittee of SCAC. Student SCAC would like to acknowledge Linda Cook for her positive role in all stages of publishing this issue.

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THE INFLUENCE OF THE MEDIA AND ITS IMPACT ON WOMEN

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There is a longstanding debate about whether media has deleterious effects on the mental and physical health of women and girls. After women gained access to the professional world, physical aspects of women were emphasized over their skills and abilities. Empirical studies have been conducted to explore the impact of the media on young girls, and writers such as Naomi Wolf have explored the unwritten rules of female attractiveness in the workplace. No matter the approach, though, one cannot ignore the direct connection that the patriarchal media has to poor self-image in women and girls.

1. Introduction

Over two hundred years of public interest and awareness has been dedicated to woman and her superficial appearance and temperament. From a young age, girls are bombarded with magazine, television, music, and film depictions of what they should hope to become when they enter womanhood. These images are internalized by these girls and young women, and further supported by constant peer evaluation and criticism. Once a girl evolves from her awkward and impressionable teenage stage and becomes a woman, she is then expected to cultivate herself in a way that exceeds society's expectations. It is widely believed that women who have achieved educational and professional acclaim are immune to this constant pressure of perfection, when, in fact, these successful women are expected to maintain beauty not only at the individual level, but at the professional level.

2. The Media and its Impact

During the junior high school years, the majority of young girls have a subscription to at least one fashion magazine (Cole & Henderson, 2005, p. 42). Many of these magazines promote the ideas "be yourself" and "confidence," but with the turn of a page these messages are skewed in favor of what society wants a girl to be. Fashion magazines impress upon readers that to be happy all one needs to do is follow certain rules for appearance and behavior. Young girls are warned against the dangers of promiscuity, while at the same time they are encouraged to dress sexily, and girls learn through quizzes and articles how to please men romantically and sexually (Humphrey, 2001, p. 3). A young girl's exposure to fashion magazines does not necessarily mean she will develop an inferiority complex or eating disorder, but if these messages regarding the "beauty ideal" are internalized as truths, her sense of reality may become blurred (Cole & Henderson, 2005, p. 50).

Empirical studies have taken three different approaches to discovering what impact, if any, the media has on girls and women. The approach most directly related to the media and professional women examines the impact of stereotypical gender roles on television, and the occurrence of

women falling into traditional gender roles and occupations as a result (Cole & Henderson, 2005, p. 4). Studies have shown that women and girls who frequently watch television shows with "female characters with only a limited range of attributes, skills, and abilities" are more likely to associate with the stereotypical assumptions of the female sex (Cole & Henderson, 2005, p. 5). Interestingly, frequent action-adventure program exposure is found to produce lower estimates of professional women, and frequent exposure to soap operas gives way to high estimates of housewives and female professionals (Cole & Henderson, 2005, p. 5). Also, women of color have greater body and weight satisfaction than white women, who develop eating disorders more often (Cole & Henderson, 2005, p. 44). An answer to this difference may stem from the fact that many media images are created using white women, not women of color (Cole & Henderson, 2005, p. 44).

3. Expectations and Professional Women

Surviving puberty and impressionable teenage years are hard for young girls, but the struggle with beauty and image do not cease to be a pressing factor. A man in our culture is judged by several factors, which include, but are not limited to, his ambition, power, aggression, and dominance. A woman, however, is almost always judged by her appearance, physically and socially, and her usefulness to society. A woman must "have a career and yet be romantic, tender and sweet and in marriage play the part of the ideal wife cum mistress and cum mother" (Dolan & Gitzinger-Albrecht, 1994, p. 18). These feminine qualities require "deference to other people, converting one's own needs to those of others, and seeking self definition through assimilation" (Dolan & Gitzinger-Albrecht, 1994, p. 17). It is this lack of power that has made necessary a change in the female sex-role definition. A woman today must cultivate her masculine traits as well as maintain her feminine traits if she wants to be accepted the both the private and public sphere (Dolan & Gitzinger-Albrecht, 1994, p. 18). This is especially necessary if a woman wants to enter into a career that is male dominated. It is the burden of maintaining the media's image of feminine beauty that professional women face sexist discrimination from employers as well as coworkers.

Feminist writer Naomi Wolf coined the term, "The Beauty Myth" to describe this socially legitimated way of discriminating against female employees (Wolf, 1991, p. 21). Wolf explains this beauty myth with the example of a totalitarian power structure. In the public sphere, men hold the power, but they are not the majority; the women are, and when the fear of losing power became strong enough, men discovered a way to maintain control over women entering into the traditional male sphere (Wolf, 1991, p. 22). A woman can be controlled by a man if he is able to use her feminine traits to her disadvantage. A woman can be hired based on her professional beauty and appearance and fired for the same reason. In the United States there are certain jobs that legally are allowed to use sex discrimination. The law is called a Bona Fide Occupational Qualification (BFOQ), and these jobs may require a specific gender, i.e. a Hooters waitress, or it may require that the applicant meet a certain level of "femaleness" or "maleness", i.e. a wet nurse or sperm donor (Wolf, 1991, p. 27). While these laws protecting sex discrimination are justified, the unwritten laws of the Professional Beauty Qualification (PBQ) promote double-standards and are widely being used as a way to hire, promote or fire a woman (Wolf, 1991, p. 27).

The PBQ began in the 1960s when single women began to migrate to cities to start their careers (Wolf, 1991, p. 31). The media began to promote careers for women such as airline stewardesses,

models, and executive secretaries, but they did so in a manner that made the women entering these fields seem sexy, thereby undermining the seriousness and importance of the work. Decades later, laws were enacted that protected the image of the working woman and required that the media portray these women and their careers seriously (Wolf, 1991, pp. 33-34). A professional women's appearance was defined by television journalists, who placed the older, distinguished anchorman with the young heavily made up woman co-anchor (Wolf, 1991, p. 34). This idea of the "wise older man" paired with the "young sexy woman" became the model for the workforce. Women who were already self conscious about entering the workforce had to further worry about how their appearance would affect their job. A woman is not visible in the workplace because of her intelligence, but because of her appearance and personality.

With this weight resting on a woman's shoulders, it is no wonder that even powerful professional women can become victims of society's expectations of women. Women who long to become high profile professional women may compare themselves to women they admire in those positions and decide what they have and do not have (Hesse-Biber, 1996, p. 70). Sharlene Hesse-Biber interviewed many women who believed that they did not "measure up" to other women, and as a result felt self-hatred (Hesse-Biber, 1996, p. 70). If a professional woman realizes that society, the media, and the workforce are all controlling her life and she is living with a false sense of independence and power, she is more likely to fall victim to an eating disorder or dependence on cosmetic surgery, things she believes she has the power to control.

4. Disorders and Prevention

An anorexic woman deals with the pressures of the ideal woman propagated by the media by starving herself, constantly believing that there is no such thing as "too thin" or "eating too little" (Maloney & Kranz, 1991, p. 49). Forty percent of anorexic women binge, in which they eat large amounts of food in a short duration, and then either fast or vomit to balance out the large food intake (Maloney & Kranz, 1991, p. 49). Professional women who suffer from an eating disorder are often bulimic, because most bulimics try to create the appearance of a "perfect, elusive, successful woman" (Maloney & Kranz, 1991, p. 73). A bulimic woman is constantly hungry and satisfies her hunger by eating unhealthy amounts of food and then throwing it up almost immediately after, like a reflex (Maloney & Kranz, 1991, p. 73). Bulimia is often the eating disorder among professional women, because it usually develops in late teenage years or early twenties and sometimes as late as one's fifties (Maloney & Kranz, 1991, p. 75).

A woman who suffers from the burden of ideal beauty can also become addicted to cosmetic surgery. The beauty industry skyrocketed when women began to enter the paid workforce in the past decades and the need for "professional beauty" was institutionalized (Paiewonsky, 2000, p. 2). An income at a woman's disposal coupled with the desire to "reaffirm femininity" due to social pressures in a man's world feeds the beauty industry and keeps its poisonous message of the "perfect woman" alive (Paiewonsky, 2000, p. 2). While men are valued for their achievements, women are valued at only a superficial level. While women are becoming empowered and independent in the public sphere, they are being disempowered at the individual level, because they question their beauty in terms of success and desirability (Paiewonsky, 2000, p. 5).

Bridget Dolan and Inez Gitzinger developed three means of intervention to target the media

and its impact on a woman's body image. The first strategy involves "changing the media images and messages," which is probably the most difficult of the three (Dolan 51). Instead of banning slim models, the media would have to promote women of all sizes, colors, and shapes, so that an "ideal" cannot be determined (Dolan & Gitzinger-Albrecht, 1994, p. 51). This intervention is difficult, because it places too much editorial constraint on the media and challenges freedom of the press (Dolan & Gitzinger-Albrecht, 1994, p. 51). The second solution is to "change the individual" by "helping the individual to change the symptoms that are exacerbated by the media" (Dolan & Gitzinger-Albrecht, 1994, pp. 51-52). This, however, is unlikely to be effective because the media's demands are everywhere and have been internalized by women since youth (Dolan & Gitzinger-Albrecht, 1994, pp. 51-52). The final possibility for intervention is "preventing the media messages from having their effects," which is the best way for combating the ideal body image's influence on women (Dolan & Gitzinger-Albrecht, 1994, p. 52). By teaching teenagers and children that magazines are altered and television is not reality, the youth will be able to spot what is fake and what is real, and what is more important and what is vanity.

5. Conclusion

The media has had a direct impact on women and girls physically and mentally. Beauty is defined through the eyes of man, and, as a result, the ideal woman is a far cry from what nature dictates. Little girls are dressed in pink dresses and are taught to play house and be caregivers. Teenage girls experience the direct impact of the media when they read fashion magazines and watch television dramas geared towards teens that promote beauty, money, and sex. Once a woman is ready to become a professional, she is expected to uphold all she has learned in her youth and use it to her advantage in the workforce. A woman must learn how to walk the fine line between icy hag and sexy bimbo if she wants to keep her job and earn promotions. Women will only gain access to an equal playing field with men when the media puts an end to promoting an ideal woman with a one dimensional personality and mannequin-like appearance.

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NEL NODDINGS AND THE SHORTCOMINGS OF CARE

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One of the toughest tasks in the philosophical tradition has been to find the best ethical theory, and it is a task that has mostly excluded women. Nel Noddings provides one of the first, substantial attempts at constructing a feminist ethics: the ethic of care. In order to treat Noddings's theory seriously, it is important to read it thoroughly, and critically. Upon doing so, certain aspects of the theory become clearly problematic, such as the obligation to care, the devaluation of the self, the lack of true reciprocity, and having to stop caring for oneself. As such, far from liberating women, the ethic of care serves as another justification for the oppression and exploitation of women. So, although we should applaud Noddings for her attempt to make women's voices heard, her theory itself must be dismissed because of its many failures.

I. Introduction

Throughout the ages, there has been a plethora of attempts to put forth the best ethical theory; however, these have all failed to take into account women's perspectives. The result of this has been the oppression of women, mostly through the silencing of their intellectual capacities. This having been the case, one finds it refreshing to see a feminist approach to ethics, such as has been put forth by Nel Noddings. However, as important as it is to have this perspective on ethics, this is not reason enough to accept her theory. In fact, true justice, both to the study of ethics, and to women, can only be done by critically evaluating the content of Noddings's theory. Upon such examination, it is clear that Nel Noddings's theory is incomplete and dangerous, and is lacking not only in the general sense, but also in that it lends to the further oppression of women.

II. Ethical Caring

Nel Noddings's ethical theory is one that moves away from the traditional paradigm of justice and principles, and towards an ethical theory founded on care. In her own words, Noddings justifies this paradigm shift as necessary because "if a substantial segment of humankind approaches moral problems through a consideration of concrete elements of situations and as a regard for themselves as caring, then perhaps an attempt should be made to enlighten the study of morality in this alternative mode" (as cited in Held, 1995, p. 9). One can clearly see that, like Carol Gilligan, Noddings's primary battle is to ensure that women's perspectives are accounted for. However, as was the case with Gilligan's work, it is still debatable whether her theory accurately represents women's attitudes. Noddings sets out by making a clear distinction between "natural caring" and "ethical caring" (as cited in Held, 1995, p. 9-10). She describes natural caring by using the example of a mother caring for her child. It is that form of caring wherein we act for the other because we wish to do so. Noddings describes ethical caring as adhering to the moral ideal: "our best picture

of ourselves caring and being cared-for" (as cited in Held, 1995, p. 10). Noddings's claim here helps us to understand a few of the important foundational characteristics of her theory, the most important one being that under this new paradigm the self is defined through one's relationships to others. This characteristic has some very serious implications, which are discussed below. Although she does make the distinction between natural and ethical, Noddings does not disregard "natural caring," for she believes that "ethical caring" is dependent on the caring attitude that is originally developed through natural caring. Another important aspect of Noddings's theory is the idea that we have an obligation to care, for those capable of reciprocating the care and understanding the relationship of the "one-caring" and the "one cared-for," although it is a limited one that falls well short of asking us to commit ourselves to universal love (as cited in Held, 1995, p. 12). With this basic understanding of Noddings's theory in hand, we may now begin to examine the implications of subscribing to such an ethic.

III. The Obligation to Care

The first problem with Noddings's ethic is that it does not allow the "one-caring" much discretion when entering into a caring relationship. Rather, it places upon the "one-caring" an obligation to care for those who come to us, as long as there exists a certain degree of relatedness, and as long as they are capable of reciprocating the relationship. Insofar as this is the case, and as far as we have an obligation to act in the interests of our "one cared-for," it becomes entirely possible that we find ourselves indirectly supporting the activities of the one cared-for. As Victoria Davion claims: "if the cared-for gets strength from the caregiver and uses it to support the Ku Klux Klan, and if the caregiver knows this is what is happening and continues to provide support, the caregiver is supporting the Ku Klux Klan" (Davion, 1993, p. 168-169). This problem immediately becomes twofold. First, in this scenario, the "one-caring" is forced to forgo his core moral values – for example, if he disagrees with the Klan's activities. It seems safe to say that an ethic that requires the suppression of the moral self for the sake of a relationship is a problematic one. Second, the "one-caring" must use discretion in deciding whether or not to enter into a caring relationship with another, for only in doing so can he avoid such moral dilemmas. Here, it becomes clear that Noddings's claim about our obligations as "ones-caring" are quite flawed. For, as Claudia Card claims, even "where we have no responsibility to care for others, I should think that we still have responsibilities to refrain from doing them harm" (Card, 1990, p. 102). Card raises an interesting point about our obligations. Even though it seems a daunting task to care for others, it surely does not mean that we should harm them. Rather, in a situation when we cannot help others, we should at least be careful to avoid harming them. Noddings's theory, however, wholly disregards this fact, and leaves us with the clear and present danger of harming others.

IV. Loss of the Self

The second problem with Noddings's ethics of caring is its necessary devaluing of the self. Although Noddings does claim that in order to be a successful "one-caring," it is important that one care for oneself, this care for the self is still attached to the other. In other words, the only true justification for

caring for oneself is to be the best "one-caring" that one can be. In this view, the self is diminished and garners any and all importance only through the other. This is highly disturbing in and of itself, but also has implications for one's own goals and ambitions. As Sarah Hoagland explains: "If my ethical self can emerge only through caring for others, if self is defined only in relation, and if ethics is built on caring which is always other-directed, then the only time I may focus on my own goals and have that be an ethical matter is as a cared-for" (Hoagland, 1990, p. 110). This means that the goals of the self become unimportant, and are secondary to the interests of the "one cared-for." This has serious implications. It turns the "one-caring" into an instrument of the "one cared-for," a tool to be used to achieve the "cared-for's" own ends. It is merely another form of exploitation. This also has serious implications for women. In Noddings's example, the mother serves as the model "of one-caring"; this means that her ethic directly justifies the exploitation of women. Since it is a so-called feminist ethic, this prospect seems entirely absurd. Therefore, it becomes clear that the necessary devaluing of the self, a foundational aspect of Noddings's theory, is very problematic.

V. Lack of Reciprocity

The third problem with Noddings's ethic is that the reciprocity it requires all caring relationships to have is not true reciprocity. Noddings merely asks that the "cared-for" acknowledge the "one-caring's" actions as being caring, and receive them as such. This is a form of reciprocity that at no point requires the "cared-for" to return the caring, or take into consideration the "one-caring's" interests. This is a diminished caring relationship, and is a problem within itself. However, as Hoagland claims, such a relationship has another shortcoming in that "non-reciprocity-beyond-acknowledgment undermines the possibility of instilling the value of one-caring in the one cared-for" (Hoagland, 1990, p. 110). This lack of true reciprocity raises another issue; it makes it nearly impossible to pass on Noddings's ethical theory, because from infancy all we learn is how to be "ones cared-for." If this is the case, then it becomes impossible to teach one to be a "one-caring," for one lacks any understanding of the concept of being the giver. In this case, we are forced into a world where everyone knows how to receive as "ones-cared-for," but does not understand the importance of acting as "ones-caring." An ethic such as Noddings's, that is impossible to pass down in its entirety, faces the problem of becoming self-destructive.

VI. Acting Against Self-Interest

A fourth problem with Noddings's theory is that it does not allow one to end a caring relationship for oneself; rather, bringing the relationship to an end is only permissible when it affects one's ability to act as one-caring in other relationships. "One may terminate a caring relationship when it threatens to prevent one's ability to act as one-caring towards other with who one is also in caring relationships, but this seems to be the only justification for doing so" (Davion, 1993, p. 165-166). Furthermore, Noddings claims that if one does end a caring relationship, then one is acting under a "diminished ethical ideal" (Davion, 1993, p. 166). Finally, Noddings fails to even mention the possibility of ending a caring relationship in order to maintain one's well-being. This is yet another blow to the value of the self, as it suggests that one should stay in bad relationships. For example,

if her husband abuses her, a married woman cannot ethically leave him unless it affects her ability to act as one-caring to others with whom she maintains caring relationships. For a feminist ethics, this is once again a very controversial claim.

VII. Conclusion

Of course, there are many other shortcomings of Noddings's ethics of care that one could address – as is the case with any other ethical theory. However, these problems that have been discussed above provide proof, by themselves, that Noddings's ethical theory is highly flawed. It seems perfectly clear that Noddings's theory is incomplete, or even completely wrong, because it does not properly define the relationships that should be established and maintained. It is also incomplete insofar as it does not properly define the terms of reciprocity. Finally, it is dangerous because the devaluing of the self, a foundational aspect of Noddings's theory, justifies the oppression and exploitation of the ones-caring, especially women. Ultimately, one has no choice but to dispel Noddings's theory as an underdeveloped failure.

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THE COUNTERINTUITIVE EDUCATION OF A FEMINIST

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College campuses have been inundated with the emergence of post-feminist theory, but the growing acceptance and use of this school of thought negates the yet unfinished work of feminist theory. Nowhere is this more apparent than in undergraduate ethics classes. These classes consistently survey only the theories of male philosophers who have historically marginalized and neglected the female capacity for moral action and development, and often fail to mention the feminist ethic of care, despite its influential position in education for health professionals. Furthermore, professors of ethics are often alarmed by their undergraduate students' attraction to moral relativism, but this concern actually marks the juncture of increasingly apparent holes in traditional ethical theory and the unexplored promise of feminist ethical theory. By understanding and integrating the ethic of care at this point in undergraduate education, academia could create a more holistic and ultimately more beneficial model of ethics that would not only help students develop morally, but make space for feminism to continue its work towards abolishing oppression.

I. Introduction

Feminism is failing to liberate women. From the ghettos of Women's Studies programs in college campuses everywhere to shopping malls to the nursing station at any hospital staffed by underpaid and overworked nurses, the insights of feminism have fallen into ridicule and neglect. The movement has been neutralized; the theories just aren't enough. Instead of using the feminist ethical theory, the ethic of care, to revolutionize flailing systems of health care and education, systems the ethic was formulated for, the people in charge have stuck to the traditional justice theories of dead white men as if never challenged at all. Instead of demanding change in institutions that sanction and perpetuate ignorance, such as abstinence-only education, anti-choice legislation and lobbying, and wifedom, women are busy being taught that the brand of feminism for sale in a capitalist-patriarchy is all they need to be "real" women. I have, like the rest of my sex, been educated to believe that "this the way things are" and that women work from this point, from that petrified oppression. We start as potential victims, and work towards liberation only under that condition, that natural state of society; the first time men and women question what they have considered natural is at the start of their college career. Moral theorists have identified this phase of a person's life as one of regression, when it is, in fact, a tenuous step toward the pinnacle of moral development: moral autonomy (Kohlberg and Kramer, 1969). This regression, identified as an epidemic of ethical relativism under the rule of traditional justice ethics, has been completely misunderstood. The dominance of justice ethics is, instead, the problem: the rejection of feminist care ethics in favor of the status quo is a symptom of the denigration of feminist theory into a corporate simulacrum of feminism.

II. Women as moral beings

Traditional ethicists and moral theorists have made a career out of marginalizing feminist ethics and feminine perspectives in general. The most contentious findings of Lawrence Kohlberg, considered the father of modern theories of moral development, in an article coauthored with Charles Kramer, is not that college-aged individuals exhibit moral regression, but that women never even develop beyond this state (Kohlberg and Kramer, 1969). Kohlberg reasons that stalled moral development is natural for women, as they don't need higher reasoning ability in their traditional roles as housewives and mothers (Kohlberg and Kramer, 1969). Kohlberg makes several unfortunate assumptions to reach this conclusion: that women are naturally suited to less morally ambiguous roles, and therefore do not develop as men might. He also mistakenly assumes that traditional justice ethics, which inform his method of experiment, are the only form which morality can take. Carol Gilligan (1977), a colleague and critic of Kohlberg's, points out that justice is not the only motivation for moral actions. Gilligan (1977) explains feminine morality and moral autonomy as idiosyncratic: women considered the individual characteristics of each dilemma, instead of looking for an external source of guidance. Her research leads Gilligan to identify care as extremely important in determining moral actions, rather than the uniform application of just principles. Gilligan's research, when contrasted with Kohlberg's, also illuminates the ways in which traditional justice ethics, or masculine ethics, have established ways of silencing women. Justice ethic is concerned with establishing a sameness of human experience and situations, which demands naturalizing the concept that women are a uniform class, and furthermore, are a class of feeble-minded, weaker vessels who lack the capacity to experience moral dilemmas. By assuming that human experience is identical and immutable while simultaneously privileging male experience, any and all feminine experience will be void.

Several feminist philosophers have attempted to coalesce feminine ethics into an ethic of care, but discourse about this non-traditional philosophy has been slow to reach circles in which "gender," "feminism" or "women" is not included in a course title as an indication of scholarship; in fact, much of feminist research has been slow to find equal treatment in academic pursuits outside of Women's Studies departments. Traditional ethics courses are concerned primarily with the temporal development of ethical theories such as utilitarianism, hedonism, and deontology, all attributed to dead white men in the usual undergraduate seminar. Also, ethics is taught through the same methods Kohlberg used to interview his subjects: abstract moral dilemmas. Professors issue these archaic situational oddities to students as if they are useful study guides but they are truly a distraction and abstraction from the moral questions that lead to the example in the first place (Noddings, 1984).

Moral education, then, is diametrically gendered for individuals pursuing undergraduate degrees, since they encounter only masculine ethics unless they search for the ethic of care. Kohlberg and Kramer's assertion of folk wisdom, that "the middle aged are more reliable or trustworthy than the young" because "cheating behavior is more consistent in college" speaks to his findings that individuals regress in moral development around their introduction to post-secondary education (Kohlberg and Kramer, 1969). While previous to college life, adolescents move from the childish view of obedience and pleasing authority to interpersonal consideration of moral dilemmas to burgeoning social conscience, college sees them take a step back to the relational model (Kohlberg,

1984). This regression to the relational model occurs at the same time that many academics sense relativist thinking in their students. Many educational professionals are alarmed by relativism; they find such lackadaisical moral reasoning appalling and ill-equipped to deal with human rights violations or other life-and-death moral dilemmas. When students say, "It's not my place to judge x for doing y," whether x is Nigeria or Betty, and y is female genital mutilation or abortion, professors, supposedly at higher levels of moral development, hear, "I am apathetic."

III. Relativism and the shortfall of traditional ethics

Relativism has been misunderstood, though. It is a threat not to the world at large, but to the institution. When students question the presumed objective narration and instruction of an institution of higher education, they question the legitimacy of the entire experience. Feminism has had some small successes: blurbs in history textbooks about "Women in The Colonies," for example, showcase the undeniable and pervasive oppression of women. Being met with such unsavory facts of our national development, regarding subordination and silenced voices, leads many students to question the authority of historical narrative: has authority always silenced certain groups, and what valuable contributions from the disenfranchised are being overlooked? The realization that any institution—including academia—participates in oppression through ignorance and silence of certain perspectives is inevitable. Students who come to this realization may appear to ascribe to moral relativism, but only because they are questioning the masculine metanarrative, which is aligned with traditional morality. These students are not amoral, though; they are simply skeptical of masculine objectivism and ethics. While the ethic of care is explicitly relegated to courses concerned with feminism or care, its impact on the construction of patriarchy cannot be silenced. Hence, college students who would avoid a Women's Studies class like the plague are still affected by the specters of feminism accepted by the media. This contextual mindset, in which moral solutions are reached not through blindly accepted decrees but careful consideration, coincides with the start of post-secondary life because the majority of students find themselves out from under the authority that has for long dominated their thoughts.

But then why, as first stated, has feminism been reduced to academic ghettos and materialist sales pitches? Why was *Transforming a Rape Culture* published in 1993 and republished as a revised edition in 2005 with new essays about the increasingly sad state of affairs for women? Why has there still not been a day without rape, as Andrea Dworkin (2005) demands? Because, while yet-patriarchal academia and media alike have felt ready to move onto post-structural critiques of feminism, even 'post feminism,' patriarchy has not felt ready to move on to post patriarchy. Universities abide by tradition, making only small concessions—as if an underfunded Women's Studies department were enough. Care ethics are still only discussed in feminist philosophy classes or in disciplines consistently dominated by women, such as nursing and counseling. Immanuel Kant, a notorious misogynist, still reigns supreme with his categorical imperative in pop philosophy and unconsciously so in pop culture. Legal systems, the government, workplace reform, all the original charges of feminism have been compromised to mete out justice, not understanding. And when men graduate from college, they go on to be professionals or businessmen, which demands they develop moral autonomy in the traditional sense (Kohlberg and Kramer, 1969). Women stay behind, choosing between motherhood, in which they are sterilized, and a career, in which they, in

forsaking motherhood, selfish and masculinized—still sterile. And so, too, is moral relativism in the face of patriarchal domination: as impotent as the failed activists it used to inspire.

IV. Conclusion

I used to consider myself a moral relativist because I objected to the grounds on which justice was enforced; I felt as if those ascribing to any sort of objectivism also ascribed to a religious order which maintained that morality is separate from human existence. It wasn't that I felt "anything goes;" I simply demanded recognition of humanity as precursor to morality. I was told I was wrong, and I was, but about one thing only: I was wrong about religion. Ethical theories based on justice do not answer to just any God—they answer to a male God; the study of ethics is constructed around patriarchy, not religion. And feminism, the struggle against gender-based oppression, has been devalued and ridiculed, rendered useless because it has become too essentialist or too separatist, or any other number of post structural critiques; instead we unerringly move on to post feminism. Feminism is even further denigrated, turned into an empty husk, as it is reformed by our consumer mentality, driven by still unreformed notions of sexuality and the need to make a buck. I find myself again in the third row of a college production of *The Vagina Monologues* watching a full grown woman compare her vagina to a couch, or reading an interviewer in *The BUST Survival Guide* ask a feminist musician, "What should women do in between boyfriends?" and I know, this is no post patriarchy, and it is not yet time to be a post feminist.

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MOTIVATION, ENGAGEMENT, AND SELF-CONFIDENCE IN THE SECONDARY ART CLASSROOM

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The purpose of the research was to examine what types of instructional activities best motivate and engage secondary level art students and their effect on student's self confidence of artistic abilities. The participants in this study were 41 high school art students enrolled in Studio Art courses ranging in grades 9-12 with a variety of artistic abilities/experiences, levels of class engagement, and motivation. Participants completed two separate art activities using pen and ink mediums and then rated their levels of interest with the activities and perceptions of success with the finished art products in two questionnaires. Cross comparisons of data gathered from the participants' responses and observed behaviors revealed that (a) students are less engaged when the activity is structured and the final art product is predetermined, (b) students are more motivated when the activity allows for creative problem solving than when it is driven by technical skills alone, and (c) students' confidence in their artistic ability is not affected by levels of motivation and engagement. The findings have relevance for continued support and practice of Discipline Based Art Education models in the classroom.

I. Introduction

I. a. Area of study

Motivation and engagement are two important factors that impact learning. In the visual arts classroom these factors play an especially vital role in the success of our students due to the performance based nature of the visual arts curriculum. Yet what motivates and engages our students changes as they grow and develop, affecting the way each learner comes to view and accept their own abilities.

II. b. Experiential knowledge

From an early age I knew that art was going to be a big part of who I am. I relished opportunities that engaged me in any sort of artistic endeavor, be it drawing, painting, sculpting, or transforming the every day objects around me into works of art. This certainly extended to my school work through out my years in public education, where notebooks became doodle pads, and book reports a chance to dabble in illustration of the material. My parents played an important role in encouraging me to develop my creative side, enrolling me in every extra curricular art class they could afford. Yet it was also clear that as I advanced through school as a child that the art classes offered by my public school art teachers would be the best place for me to shine in the setting of my schooling. I took every art class I could in school and always looked forward to attending those classes. I tried everything my art teachers taught and always with a positive eager attitude and my grades in art class reflected this.

It is with this attitude and my own fond of school art memories that I became an art teacher. Currently I am an art teacher at a Junior/Senior High School in a lower social economic class rural school district. With my enthusiasm and passion for the subject matter I expected my students to reciprocate my feelings. However, as the school years go by I noticed that this is not always the case, no matter how hard I try. There is a noticeable departure in the motivation and subsequent engagement in art class from the time students begin to enter junior high school and culminating to the pinnacle of low self-confidence and engagement in senior high school. The phrases "I can't draw" and "I'm not a good artist" seem to be more of what I hear on a daily basis rather than a display of initiative and engagement, and sometimes from even the most artistically able student in the classroom. I also see many students today who are impeded by their own lack of self-confidence to be intrinsically motivated to succeed in art class.

Being immersed day to day in the culture and climate of junior/senior high school students through my job has led me to believe that this is happening for several reasons. One, students in this age group are more prone to peer pressure. Students are developing socially, physically, and emotionally at this stage in their lives more rapidly than ever before and the fear of being rejected by their peers is high on their priorities. Two, students seem to have more of a self awareness during their teenage years that was not there before. Students no longer believe that they are the best at every thing but start to sense individually what they "can" and "can not" do with a higher emphasis on their shortcomings. It is no longer about being the best no matter what but rather about how they rank in comparison to the social world around them.

I. c. Research intent and purpose

The proceeding research focuses on the phenomena of secondary art students' confidence and how the arts can foster more self-confidence and motivation. The study examines the competence and motivation secondary students exhibit, in turn yielding ways in which the arts can promote higher levels of engagement, motivation, and self-confidence through the use of appropriate and successful instructional techniques.

II. Literature Review

II. a. Research context

This chapter discusses the literature relevant to the purpose of this study. In reviewing literature for this study, three themes emerged as a result: a) Art is a talent; b) Peer pressure in the art classroom; and c) Marginal status of art in the secondary classroom. In the three proceeding sections each theme is presented through existing literature followed by a discussion of the relevance of the literature to this study.

Art is a talent

Drawing is a skill that most adolescent art students perceive as a talent they either do or do not possess. According to Unsworth (2001), children realize whether they have the talent to draw or not by the age of 8 or 9 years old. When examples are put before them a feeling of inadequacy can start even earlier (Unsworth, 2001). Unsworth suggests teachers should encourage risk-taking in their students stating that creativity develops when children are able to value their mistakes and failures and see their talents as unique. It is with this idea Unsworth (2001) states:

> Just as handwriting develops into individuals styles, becoming each person's identification, so does each person's drawing style. No two people will draw the same, even if they are trying to copy another drawing. If teachers convey this to their students, they can encourage continued effort to draw. (p. 66)

A study of 9-12 year olds conducted by Bornholdt & Ingram (2001) raised similar findings on what adolescent's conceptions of their drawing abilities are. The study found through a series of interview questions that students generally rated themselves below average in their perceptions of their natural drawing talent, and that individuality was the main contributor to the participant's perceptions of being good at drawing.

Understanding that students have preconceived notions of what their artistic talents may be long before they reach high school, means challenging an already formed self awareness in this study. Risk-taking and student individuality were incorporated into the experimental portion of this study to test the positive outcomes of younger students with older adolescents. Based on the previously mentioned work done by Bornholdt, I predicted that these factors would also improve motivation and self-confidence with high school students when built into the instructional design of an art-making activity.

Peer pressure in the art classroom

Continuing with the work done by Bornholdt, introducing social interventions, such as giving the participant's sample peer answers to the interview questions, participants responded with higher ratings of their own abilities in drawing, despite their level of ability (Bornholdt & Ingram, 2001). This suggests that the supports of social interactions provide a nurturing guide to the development of the adolescent into an independent adult.

A study of eight 11-12 year old students by Pavlou (2006) used interview questions and observations to study the student's initial engagement in art activities, and issues relating to the level of engagement. High confidence pupils felt engaged and enjoyed the activities whereas low-confidence pupils felt disengaged and bored with the art activities, which the study noted as the result of the fear of failure in these low-confidence pupils (Pavlou, 2006). The most critical findings in this study were that art activities appealed to both high and low confidence pupils when materials were mixed, topics conformed to the student's interests, the activities were more complex and challenging, allowing for collaboration or social interaction (Pavlou, 2006).

Another study conducted in 2006 with two students aged 13 and 14, labeled as "artistically inclined, but otherwise disengaged" found an increase in self-worth and engagement through leadership activities in art (Hickmann, 2006, p. 330). When the participants were given the opportunity to take on teaching roles with younger peer groups their motivation increased dramatically (Hickmann, 2006).

The work of Bornholdt (2001), Pavlou (2006), and Hickmann (2006) acknowledges the importance of peers on a student's level of motivation and perceived confidence. It is with this knowledge that varying levels of peer engagement were incorporated into this study. Conclusively, more positive peer interaction should help increase the motivation and confidence of secondary level art students as it has been proven to do with younger students.

Marginal status of art in the secondary classroom

With most of the research directed at students in primary schooling, what implications are there for those in secondary art programs? Smith (2000) investigated the lack of art education research for students in secondary schooling concluding that this age group is the least understood at this point. Many researchers have shied away from research with secondary art students due to the lack of a unified curriculum, the belief that secondary programs only serve the needs of a small few targeted for vocational training, and the lack of creative expression on the part of the "self-conscious adolescent" (Smith, 2000, p.17). Yet Smith points art educators in the direction of Discipline Based Art Education, (DBAE), as one alternative to encourage and support research in this area. DBAE upholds an equal emphasis on the knowledge of art and about art making (Smith, 2000). DBAE promotes a well balanced art program in aesthetics, criticism, history, and studio practice. This student-centered approach holds greater implications for its effect on motivation, engagement and confidence.

The exploratory research in this field by Smith (2000) has helped to identify secondary level schooling as a gap for art education research. Is DBAE the correct model for art instruction at every level? Using the concepts of DBAE as a positive model, this study has aimed to include DBAE designed instruction to make conclusions about its effect on student motivation and confidence in addition to the other key emerging factors such as peer interaction.

II. b. Professional theory

Building on these gaps in research, Harper (2003) studied Studio Art students at an urban all female high school in the Midwest to address some of the problems facing secondary art educators. Designed to enhance creativity and thinking skills, Harper implemented new skill building techniques in her Studio Art classes to address motivation, procrastination, lack of preparation, low self-confidence, and the negative impact of the school infrastructure (2003). The results were minimal to improving problem solving skills.

Based on the themes disclosed in the aforementioned literature, student motivation and confidence increase with challenging tasks, the ability to make choices, the incorporation of student interests, and positive peer interaction guided by a well balanced art program. This statement holds true with students in the primary grades but has not been studied, to a large degree, with students in the secondary grades. When I realized that these motivating factors had not been applied to art instruction in a high school classroom I decided it would be especially important to conduct an experimental study in my high school art classroom.

Motivation is a key factor in determining student success with larger implications for engagement and increased levels of confidence in ability. Further inquiry as to how art educators can incorporate meaningful research findings into their classrooms in regards to the problems at hand and improving secondary art programs has led to this question:

> What types of activities best motivate, engage, and foster self-confidence of students in the secondary art classroom?

As a result of this study, art educators have increased knowledge of the impact challenges, choices, and peer interaction have on high school art students' motivation and perceived self-

confidence. The results of the classroom experiment will provide a solid foundation for how art teachers can incorporate these elements into their teaching and designing of art activities that yield highly motivated, engaged students who value their artwork and the process of artistic creation.

III. Methodology

III. a. Sample population

The student sample consisted of two high school Studio Art classes with a combined total of 41 students from a rural New York High School. Studio Art is the foundations course for a sequence in the visual arts at the senior high school level. Each class meets for 38 minutes a day on a regular basis for the full school year. The grade levels of the participating students ranged from 9^{th}-12^{th} grade. The ratio of boys to girls within the sample was relatively even with predominantly Caucasian ethnicity. The students artistic abilities/experiences, motivation, and levels of class engagement ranged from very high to very low. The students in the sample were selected based on availability.

III. b. Instruments

Attitude towards art, student perception of confidence, and motivation were measured with two questionnaires developed for use in this study. The first questionnaire contained 15 questions and the second contained 14 questions. On the first questionnaire the first two questions measure the students' opinion of art class and the factors that motivate them to do well in art class; questions three through fourteen measure the students' confidence of their artistic abilities; the final question measures the outcome of the first experimental art task. On the second questionnaire, questions one through fourteen measure students' confidence of their artistic abilities; the final question measures the outcome of the second experimental art task. For each question on both questionnaires designed to measure confidence the participants were asked to rate their responses to each statement on a scale from 1 (strongly disagree), to 5 (strongly agree). Participants checked off items to which they agree with from a list of 11 components to measure motivating factors in art class. Participants responded freely in writing to the questions addressing their attitudes of art class and the outcome of each experimental art task.

Types of art activities were tested through the implementation of a two part experiment. The first part was an art activity designed for the use of this study that was structured to imitate traditional step-by-step direct teaching models. The second part was an art activity structured to imitate open-ended creative thinking models of teaching. The goal of the experiment design was to infer which instructional model of teaching art increases student motivation, engagement, and confidence. Each participant created a total of two artworks, one for each part of the experiment. Participants were given verbal, visual, and written directions as how to complete the tasks. Each art task was administered over a 10 day period for a combined total of 20 days.

Student motivation, engagement, and confidence during the experiment were measured using observations. A checklist was designed for the purposes of this study to record observations of student behavior. This checklist was a four-item inventory of negative behavior. The four items were: off task behavior, verbal comments, students seeking teacher assistance, students seeking peer assistance. A written description of "off task behavior" was established first and listed at the

bottom of the checklist for reference. A new copy of the checklist was used for each of the 20 days of the experiment. The four items appear across the top of the table with room for tally marks set up into rows beneath each column. There are two rows for tallying divided by gender.

III. c. Procedure

A detailed proposal of the study was first offered to the Human Subjects Committee of SUNY Oswego to verify that the ethical standards for the use of human participants in a research study are upheld. A verbal proposal was made to the administrator of the school building to discuss the study's purpose, methods, and role of the student participants. Under the regulated policies of the Human Subjects Committee and those of the School District, the study proposal was adjusted and finalized to ensure the rights of each individual participant.

Once permission was granted by the Human Subjects Committee and the school administrator, parents of each student in the sample were notified of the research intent. Information letters were mailed out to parents during the first week of the study. Upon successful delivery of the parent letters students were handed a consent form in class. The student informed consent form informed them of the terms and conditions of participating in two separate research tasks with two questionnaires during the proceeding classes. All 41 students signed and returned the consent forms within the same week.

After all the parent letters and student consent forms had been accounted for I began to administer two structured art activities in both Studio Art classes. The first activity provided the students with structured criteria to follow for creating a pen and ink drawing. The assigned task did not facilitate the teaching of new skills or concepts. Students had to rely on the synthesizing of skills and concepts taught in previous units of instruction prior to the start of the research to complete the task with as little teacher or peer coaching as possible. The task entailed handing each student the same black and white photograph of a landscape which each student then gridded and drew on white 9"x11" drawing paper, and rendered in pen and ink mediums. I read aloud, listed on the blackboard, and demonstrated the precise directions as to how to construct the grid and apply pen and ink mediums to complete the task. Students were given ten days to complete this first task. At the end of the ten days each student was handed a questionnaire. The questionnaires asked students to rate their opinions about the task in regards to their levels of motivation, engagement, and feelings of success with the task. A total of 39 of the 41 participating students voluntarily completed the first questionnaire.

After the first task and questionnaires were completed the students were assigned a second task. This task similarly utilized the same art materials (pen and ink) and prior skills in composition, drawing, and proper management of the medium. This task differed in that students were provided with the ability to make several choices about the creation of the art product and needed to use individual artistic problem solving skills to develop a solution. To start this task, students were given a handout about the illustrator Edward Gorey explaining the artist and his work. One 38 minute class period was spent reading Gorey's picture book, *The Gashlycrumb Tinies* aloud to the class where students recorded their impressions of his literary and artistic style in their sketchbooks. Next students were referred to the section of the handout where I gave guidelines for creating an illustration in the vain of Gorey's style. Students spent the next seven days sketching ideas for their own illustrations and working up their best idea on a 9"x11" piece of white drawing paper using pen and ink. After completing the second task each student was given a second questionnaire. The

second questionnaire was an identical format to match the first questionnaire with minimal changes to accommodate for the use of choices within the assignment. A total of 34 of the 41 participating students voluntarily completed the second questionnaire. Both questionnaires were an indication of what type of instructional methods increased the students' level of motivation, engagement, and confidence in artistic abilities.

During the course of both tasks I conducted the classroom observations. The impracticality of serving both the role of the teacher and the observer was solved by attaching the checklist to a clipboard which I kept at my side during all task work times. Observations were made in conjunction with facilitating the tasks and I refrained from intervening in the creation of the tasks as much as possible.

IV. Data Analysis

Data was collected through the following three instruments: a) questionnaire, b) experiment, c) observation. Questionnaire responses and observations were counted according to assigned numerical scores for the purpose of quantitative comparison. In this section the methods chosen for analysis are described and explained according to their relevance with the data from this study.

IV. a. Questionnaire data

Responses from the questionnaires were translated into quantitative data. The total number of times a response was recorded by a participant following the attitude scale on both questionnaires was first counted and then calculated into a percentage out of the total number of responses per question. Each of these responses rated on the attitude scale was given a numerical score following the Attitude-scaling Method. Low scores indicate low levels of motivation and confidence and high scores indicate high levels of motivation and confidence (for further discussion on Attitude Measurement, see Oppenheim, 1966). In order to view the percentages of total high and low responses per each question a pie chart was chosen as the organizational instrument. Pie charts represent the deviation of responses per scaled response question as a percent for each rating out of the total number of participant responses. Likewise the motivational measurement on questionnaire 1 yielded a number of responses to each motivating factor that was totaled and represented as a percent out of the total number of participants who responded to that question. Due to the large number of items on that question, (11), a bar graph was chosen as the appropriate instrument to visually represent the frequency of items in comparison to one another. The qualitative data gathered from the free-response questions on the questionnaire was omitted due to the lack of responses obtained from participants.

IV. b. Experiment data

The artworks produced by participants of the study were analyzed using consensual qualitative research (CQR; Hill, Knox, Thompson, Williams, Hess, & Ladany, 2005). First each artwork was individually analyzed and assigned a skill descriptor; excellent (exceeds standards; 92-100%), average (meets standards; 80-91%), satisfactory (meets some standards; 65-79%), unsatisfactory (fails to meet standards; 0-64%). Interpretation for each skill descriptor was compared to the New York State Standards for learning in the Visual Arts and the general assessment practices put forth

by the visual art department and school district standards. The artworks were coded according to their descriptors and their frequency calculated as a percentage out of the total number of completed artworks per task. These percentages are represented in a bar graph for visual comparison.

IV. c. Observation data:

The observational data was recorded as a series of tallies as per the four-item inventory. Items are color coded by the task they originated from for analysis. Task one observation items appear in blue and task two observation items appear in red. The observational data is used to check the validity of the questionnaire response results. To organize the items for comparison analysis a double bar graph was chosen to represent the color-coded number of observed items in the four categories of the inventory for both tasks simultaneously.

V. Results

The two primary questions explored through this research include a) which type of art activities keep students more motivated and engaged: teacher structured, technique-driven art activities or DBAE modeled student-centered art activities? b) What effect do both of these types of activities have on student confidence?

V. a. Motivation affected by instructional differences:

The first research question addresses the association between type of instructional activity and motivation. Table 1 represents the level of achievement each participant received as a result of the final art product created for each art task. There is a substantial difference between the number of students who achieved proficiency in the task, (scored average or above skill level), and the number of students who did not achieve proficiency, (scored satisfactory or below), when comparing task 1 to task 2. Only 56.8% of the 44 students who participated in the art activities had achieved acceptable skill levels on task 1 compared to 86.3% of participants on task 2. On task 1, 43.2% of the participants fell below skill level accomplishment, a mere satisfactory or below, compared to only 13.7% on task 2. Figure 1 shows the shift in the relationship between the proficiency levels of both tasks.

Table 1: The data collected shows the changes in the level of artistic achievement between the art products created for task 1 and task 2.

	Task 1		Task 2	
Skill Descriptor	**# of students**	**Percentage**	**# of students**	**Percentage**
Excellent (score between 92-100)	12	27.2%	21	47.7%
Average (score between 80-91)	13	29.6%	17	38.6%
Satisfactory (score between 65-79)	13	29.6%	2	4.6%
Unsatisfactory (score between 0-64)	6	13.6%	4	9.1%
Totals	44	100%	44	100%

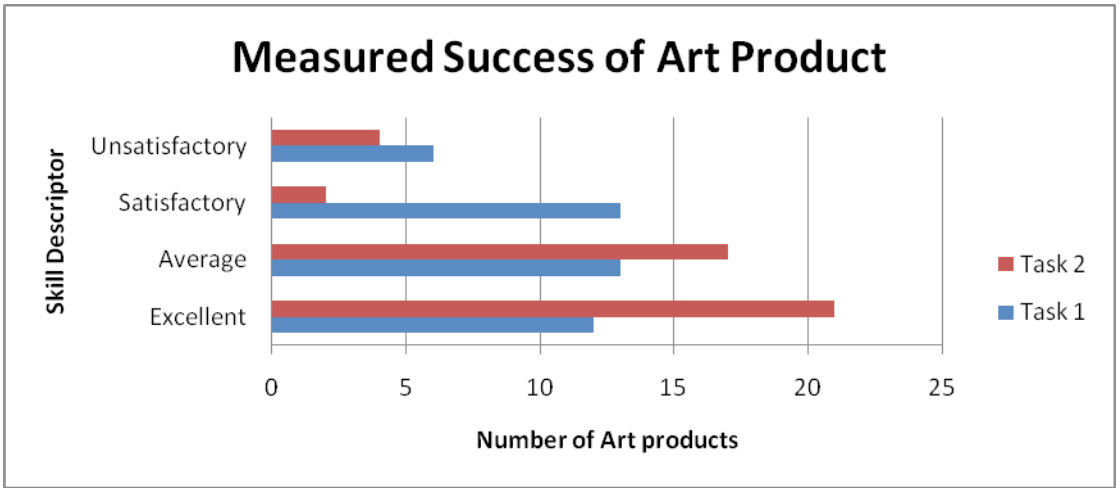

Fig. 1: Shows the shift in achievement levels demonstrated by the artworks created by participants from task 1 to task 2. A larger number of the artworks generated during task 2 meet or exceed average levels of achievement demonstrating higher levels of student success during task 2.

Data procured from the observations are shown in Figure 2. For each of the four itemized behaviors a total was calculated as to the number of times during each task that the behavior was observed. There are significantly higher levels of off task behavior and negative verbal comments for task 1. There was also an increase in the number of times students requested the help of the teacher during task 1. Participants engaged in assisting peers during both tasks a near equal number of times; 25 times in task 1 versus 23 in task 2. This analysis indicated there is a correlation between proficiency in an artistic task and negative behavior.

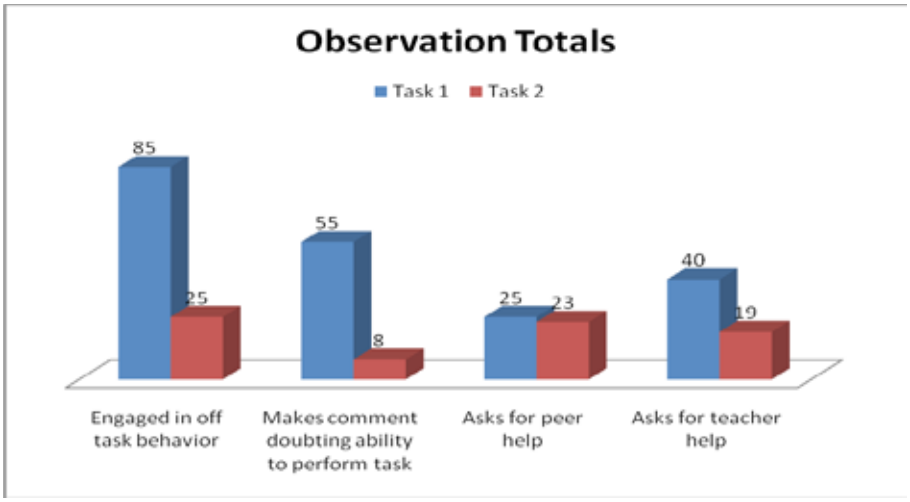

Fig. 2: Shows the outcome of the observations recorded during each of the two experimental tasks. The numbers indicated by the bars relate the number of times a particular behavior was observed by any one of the participants during each task.

Table 2 shows the percentage of the participants who answered "yes" to which instructional factors motivated them to do well in art class. Each instructional factor is shown in Figure 3 along with the number of students who responded positively to that factor. It is evident that the majority of the participants agree that earning a good grade and making art about the things they like instill the most motivation with 79% of the total participants in agreement.

Table 2: The data collected by the first student questionnaire shows the percentage of participants who responded positively to each motivational factor.

	Percentage
A	46%
B	79%
C	54%
D	62%
E	56%
F	10%
G	13%
H	46%
I	79%
J	59%
K	33%

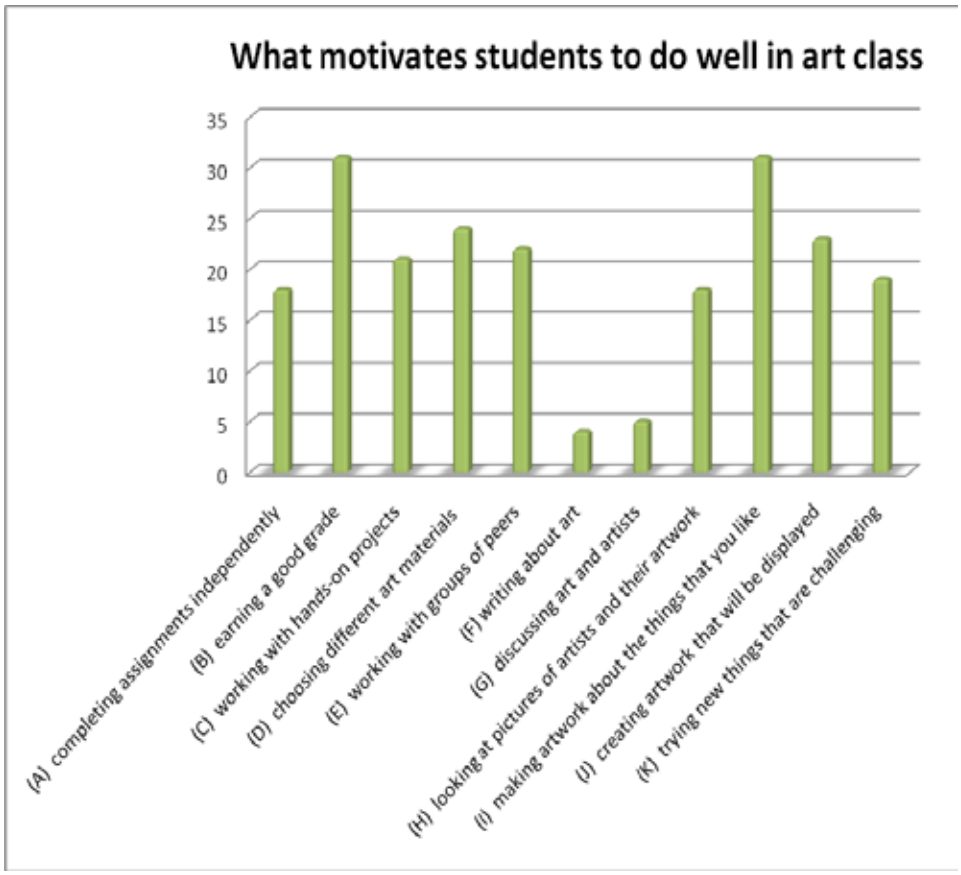

Fig. 3: Shows the number of times each instructional prompt was selected by a participant as a positive motivator.

V. b. Confidence affected by instructional differences

The second research question concerned the effect instructional differences had on student confidence of their artistic abilities. To examine this relationship, seven questionnaire items were isolated as confidence predictors. These seven items remained a constant, appearing identically on both questionnaires. Figures 4-10 depicts the range of responses obtained from the participants regarding these confidence indicators. The number of responses each rating received by the participants is shown as a percentage out of the number of total participants. To account for the unequal amount of completed questionnaires between task one and task two, the graphs are based on a total of 41 responses. The difference between the 41 participants (100%) and the total number of completed questionnaires for each task is accounted for in a non-response category. For the first questionnaire, task one, there is a 14% non-response margin since only 39 questionnaires were completed. For the second questionnaire, task two, there is a 24% non-response margin since only 34 questionnaires were completed. Creating the non-response margin has allowed responses from both questionnaires to be compared on an equal scale.

A comparatively similar amount of participants agreed that it was important to do well on both

tasks with 64% agreeing to the statement after task 1 and 53% agreeing after task 2. Figures 4.1 and 4.2 shows only a very small percentage of participants who felt this was not important.

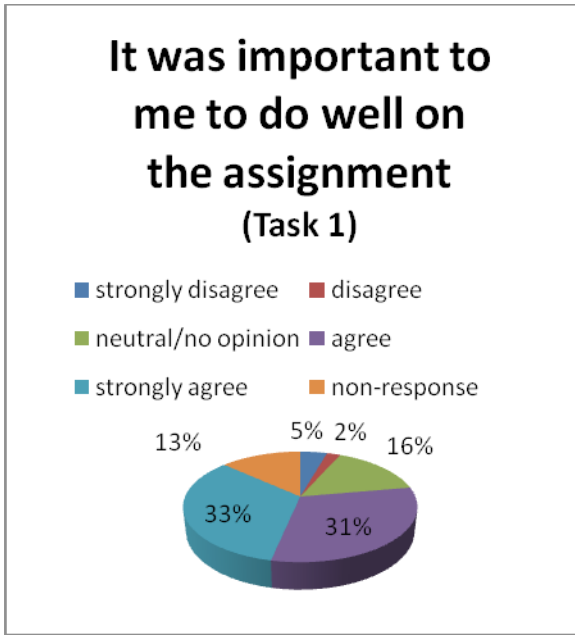

Fig. 4.1

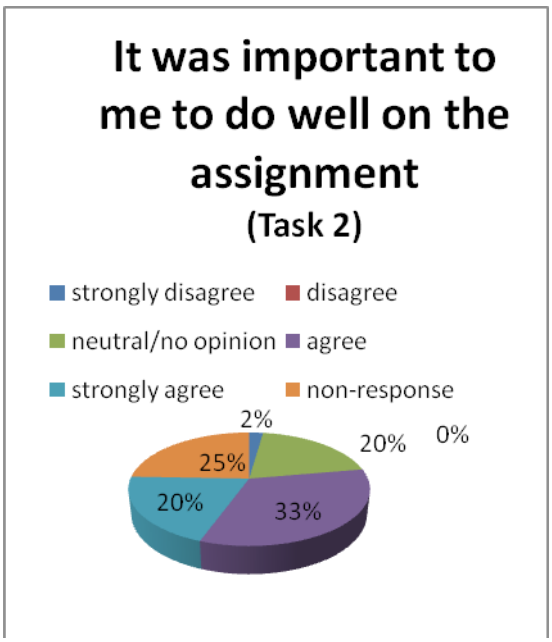

Fig. 4.2

The majority, (more than 65% in Figures 5.1 and 5.2), of participants understood all the directions for each task clearly and Figures 6.1 and 6.2 illustrates 29% of participants reported they did not need any help to complete either of the tasks.

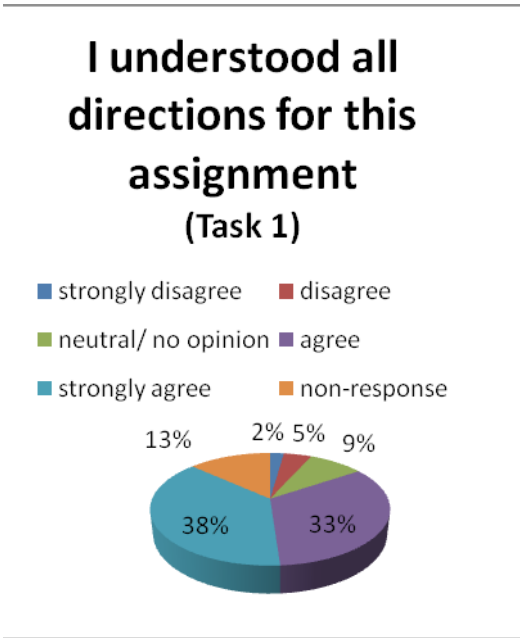

Fig. 5.1

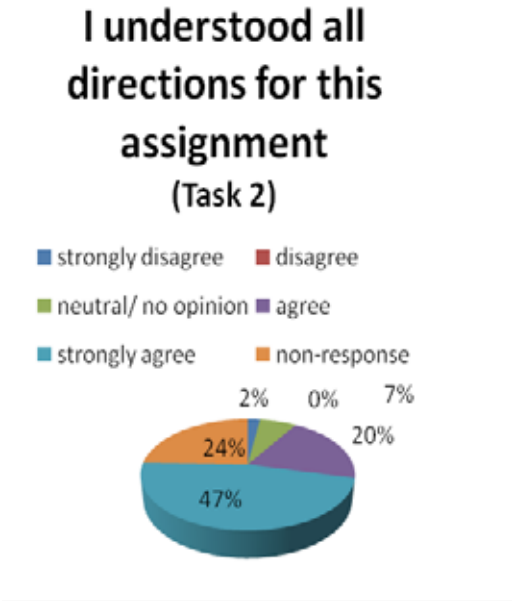

Fig. 5.2

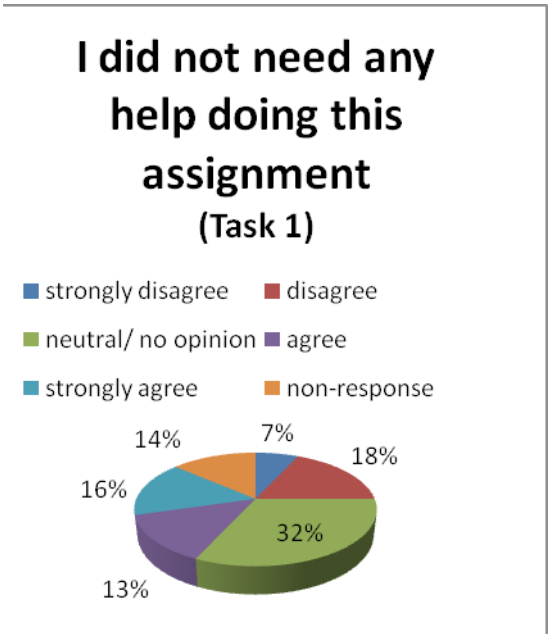

Fig. 6.1

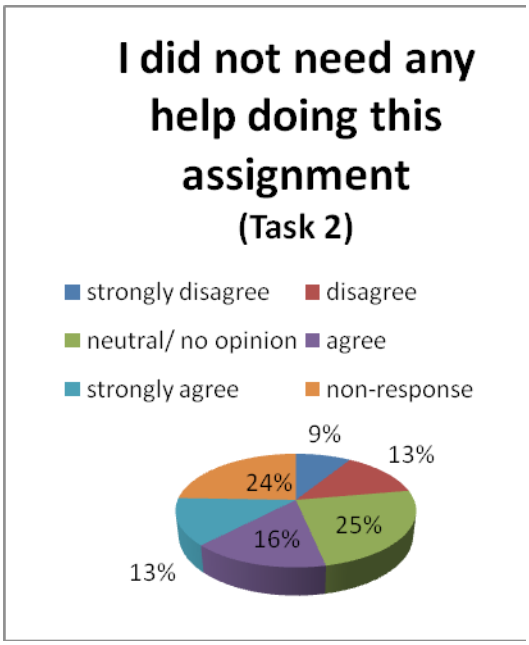

Fig. 6.2

As shown in Figures 7.1 and 7.2, a marginally larger population of the participants found the second task to be more interesting increasing 8% from task 1 to task 2.

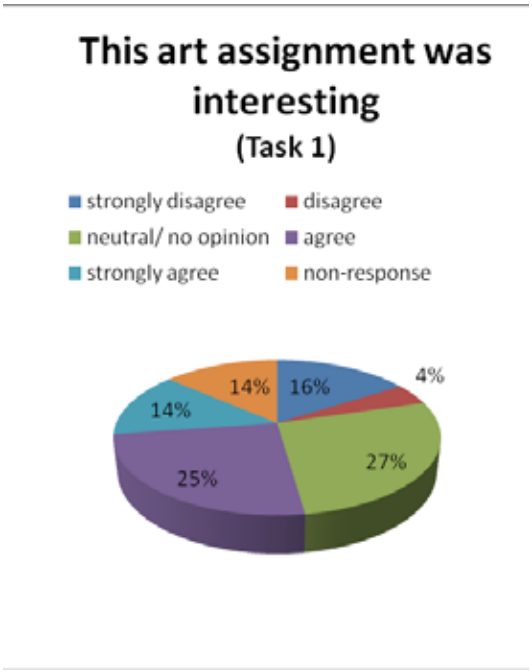

Fig. 7.1

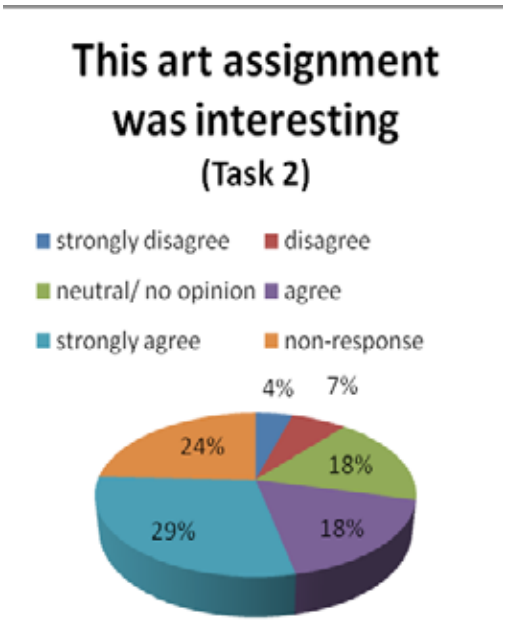

Fig. 7.2

Although the same art materials were used in each of the two art tasks, more students felt they were successful working with the art materials during the second task increasing 6% as illustrated in Figures 8.1 and 8.2.

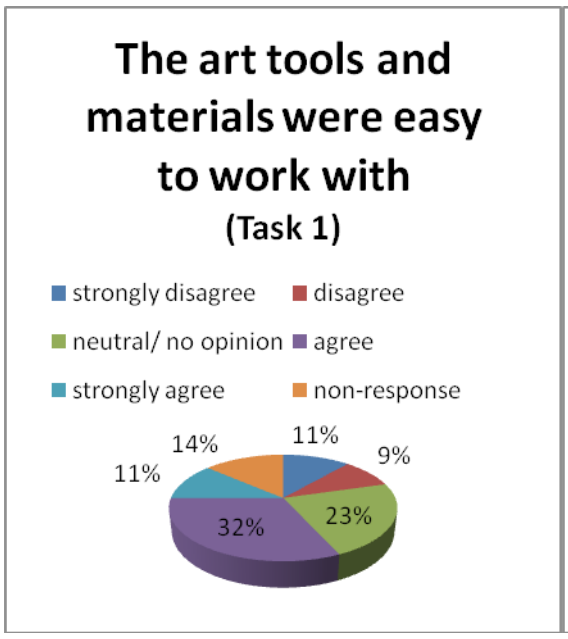

Fig. 8.1

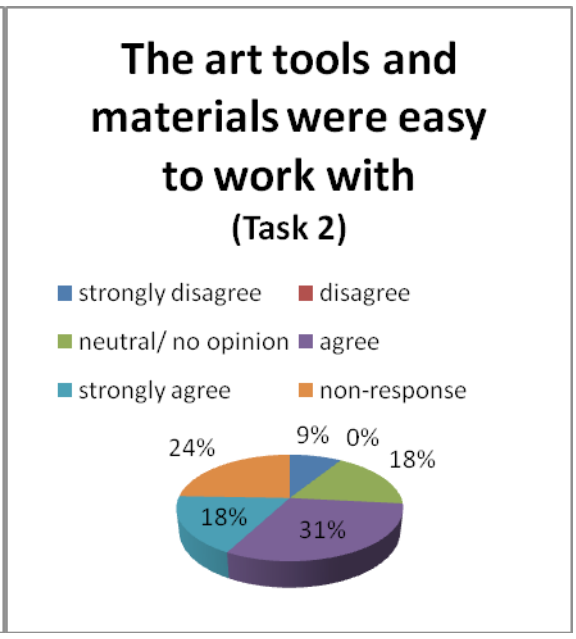

Fig. 8.2

When asked if the participants would like to have the artwork they created in each of the tasks displayed, 29% of students did not want their work displayed for task 1 and 27% did not want their work displayed for task 2. Figure 9.1 and 9.2 shows the similarities in the responses made by the participants in regards to displaying their artwork. Participants' overall level of confidence in their artistic abilities remained relatively the same after each task. Figure 10.1 and 10.2 indicates 47% of students feeling confident after task 1 and 44% of students feeling confident after task 2.

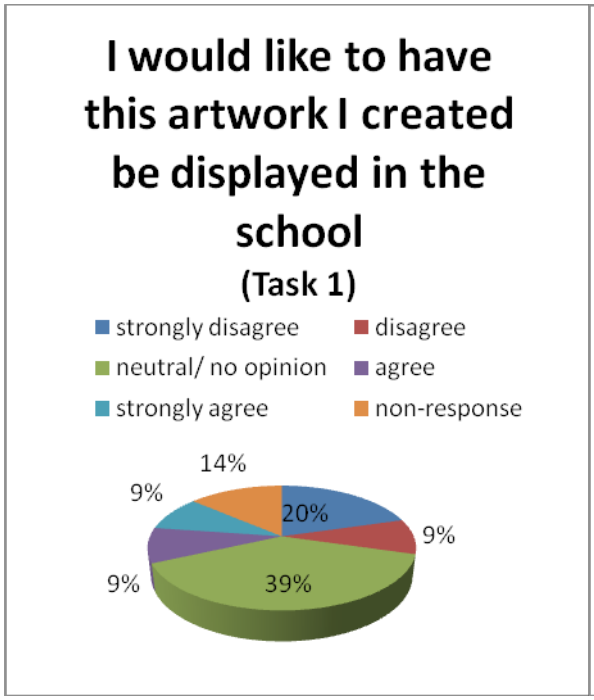

Fig. 9.1

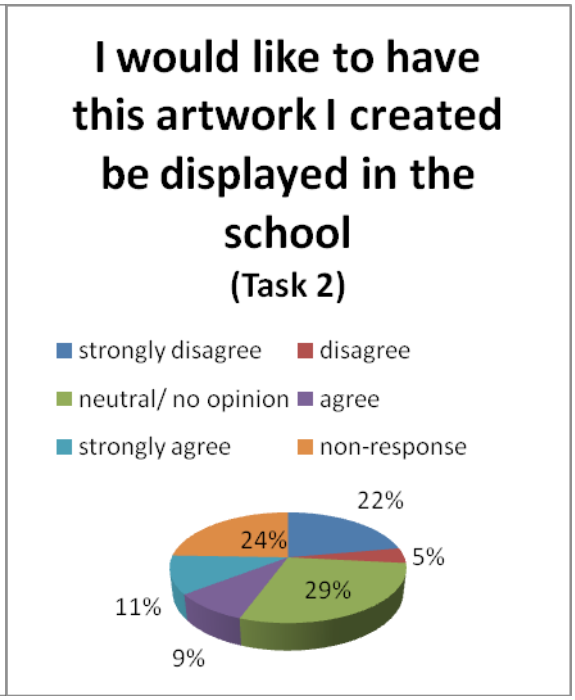

Fig. 9.2

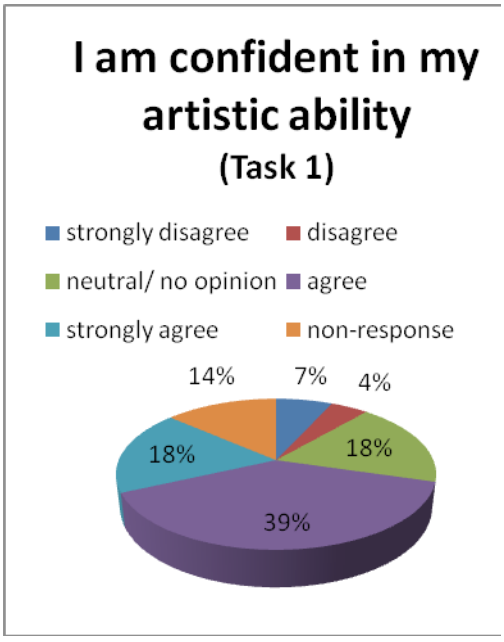

Fig. 10.1

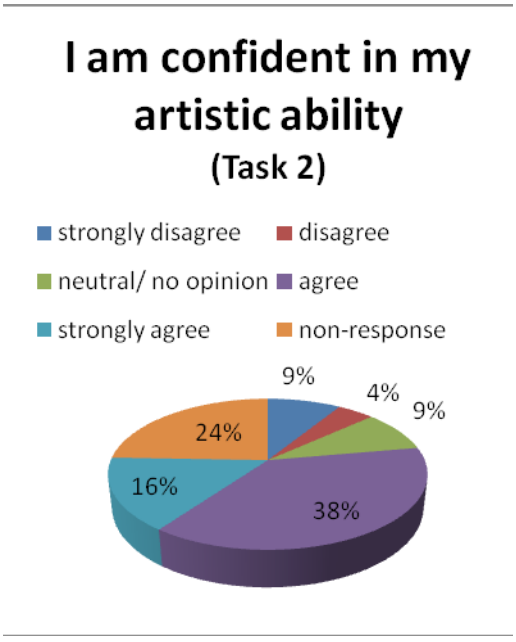

Fig. 10.2

VI. Discussion

My findings indicate that different types of art activities affect students' levels of motivation and engagement. When the activity is structured and driven by technique with a predetermined art product, such as in the first task of this study, students become more off task and vocalize negative opinions of the activity and their ability more often. This would seem to indicate that students were far less engaged and less motivated during task 1. On the contrary, students were more motivated and engaged during task 2 when the activity was open-ended and utilized creative thinking strategies as supported by the data which revealed less off task behavior and negative comments. Students more frequently asked for teacher assistance during the first task, 40 times as compared to 19, indicating that students were less confident in their abilities to complete the first task. Since the first task relied heavily on the technical ability to create photorealistic art and the second task more on creative problem solving it would also seem to suggest that students are far less confident in their abilities to work with drawing processes and material techniques than they are with their abilities to develop solutions to more open-ended tasks. When students are not shown what the "correct" art product should be they are far less inhibited about engaging in the activity. This certainly aligns with earlier findings by Pavlou, (2006), with younger adolescents that claimed students were more motivated by choices and the ability to conform art products to their own interests. During both tasks, however, the number of times students asked for help from their peers remained relatively the same suggesting that students felt it was important to get their peers opinions regardless of the task at hand and that students highly value what their peers' think of their abilities at all times. Interviews conducted by Bornholdt & Ingram, (2001), similarly proved that when adolescents are given guidance by their peers in a positive way their own perceptions of their art improve. This theory also worked out in a negative way whereas during the first task when students made negative comments about their work or a peers work the participants continued to doubt their ability to complete the task to a level that was satisfactory for them.

In my study, the majority of participants cited the source of their motivation to be creating artwork that conformed to their own interests. Personalizing artwork in order to make it interesting supports earlier findings by Pavlou, (2006), where a study with younger students revealed the same motivator suggesting that at any age students will be more engaged and more connected to the artistic process if it seems interesting and relevant to them. In the first research task the students had no personal connection to the subject matter whereas in the second task students were provided with the opportunity to inject personal interest into the art product therefore having higher levels of motivation and engagement as supported by the data collected during this study. The data also revealed that the majority of students were highly motivated by the desire to earn a good grade in art class. It would seem students felt this was more achievable with the second task more so than the first due to the observable levels of engaged behaviors during the second task. When students do not fear being judged for their technical ability to create art and instead are led to being evaluated for their creative thinking skills to create art they are less likely to disengage from the task and hold a low perception of their artwork regardless of their actual abilities.

A significant proportion of the students reported feeling confident in their artistic abilities after task 1 and a near equal proportion of the students similarly reported feeling confident in their artistic abilities after the second task. Despite the changes in activity structure, student self-confidence remained the same indicating that the type of art activity has no affect on the self-confidence of high

school art students. As concluded by Unsworth, (2001), children realize their artistic capabilities by age 8 or 9. The fixed outcome on student self-confidence in this study supports Unsworth's findings indicating students develop their sense of artistic confidence long before they reach secondary schooling.

Although these research findings have been relatively positive in producing results that make for larger implications in the Visual Arts classroom there were several limitations. The sample used was relatively small. A total of 41 students allows only for small comparisons whereas a larger sample may yield more implications. The sample consisted of students from low economic status in a limited rural area only. The artistic experiences and levels of interests of the students enrolled in the Studio Art classes were diversely mixed from very high to very low. Further studies with students in other populations are needed in order to broaden the scope of implications found in this study. Art materials are also a limiting factor in this study. Pen and ink materials were chosen based on availability and cohesiveness with the New York State secondary Visual Arts curriculum and the timing of this study. The use of other materials such as paint, pencils, or three dimensional mediums and their impact on motivation and self confidence of students' abilities would make for interesting companions to this research. Using student questionnaires is somewhat limiting in that some students opted out of participating or simply replied with no opinion when it came to rating their responses lessening the number of responses that could be compared to the sample. There is also a margin of error that should be considered for students who may not have responded thoughtfully or truthfully to the questions. Other methods of data collection that more directly interact with the participants such as interviews, though time consuming provide a more cohesive in depth response. As a follow up to this research, conducting interviews with the participants whose questionnaire responses revealed either very high or very low levels of self confidence might provide further insight as to the origins of their responses.

The implications of this research extend in practice to the classrooms of secondary art educators. The teachings of Discipline Based Art Education, (DBAE), have paved the way for teaching art around larger themes centered on student driven art products as recently as the last two decades. The first art task in this research reflects much of what teaching art used to be before DBAE, strictly centered on technical ability and mastery of mediums as explained by Smith, (2000). The second art task aligns with DBAE philosophy in that individual creative problem solving and student interests are equally as important. The research results suggest students were more motivated, engaged, and held higher self confidence in their artistic abilities with this type of task. More professional development for art educators on DBAE is needed to help art educators provide all of their students with successful art making experiences.

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QUARTZ RIBBONS FROM THE PISECO LAKE SHEAR ZONE: DO THEY TRACK THE LAST PULSE OF DUCTILE DEFORMATION?

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Quartz c-axis orientations were studied for several samples from the steeply dipping mylonite zone near the type locality of Piseco Lake in the Southern Adirondacks, N.Y. Seven samples were studied with the use of a Nikon universal stage then plotted stereographically. Each slide was examined for quartz grains within ribbons. These grains are typically elongated in the X direction with straight grain boundaries relative to the surrounding matrix and quartz grain boundaries which form at right angles to one another. One vein was also analyzed displaying a different quartz texture when compared to the ribbons but still yielded a single asymmetric girdle pattern like the rest of the samples. This analysis was carried out with the hopes of determining how the quartz ribbons which define a major lineation trending between 95-110°, roughly sub-horizontal to macroscopic shear zone boundaries, formed. The regional scale model of sinistral transpression has been proposed as the mechanism of formation for this region of the Adirondacks. The mechanism proposed for the formation of the quartz ribbons is either late-post deformational annealing or possible veining allowing quartz to crystallize in a sinistral shear couple.

I. Introduction

In recent years a major ductile shear zone has been defined by Valentino and Chiarenzelli in the southern Adirondacks, the Piseco Lake shear zone (Fig. 1). It is E-W trending and approximately 20 km in width. The lithology of the region is mostly granitic in composition. This region is defined by two structurally different regions, whose formation histories are linked. There is the Piseco Dome just to the north, and the steeply dipping mylonite zone to the south. Both regions show a variation in fabrics from L-S to L fabrics with seemingly no foliation. Lineations within the steeply dipping mylonite zone and the anitform consistently trend 95-110°, regardless of foliation orientations, and sub-parallel to shear zone boundaries. Foliations throughout the antiform form a broad dome formation dipping shallowly in the center and becoming progressively steeper closer to the boundary of the steeply dipping mylonite zone. Foliations within the steeply dipping mylonite zone range from about 65-90°.

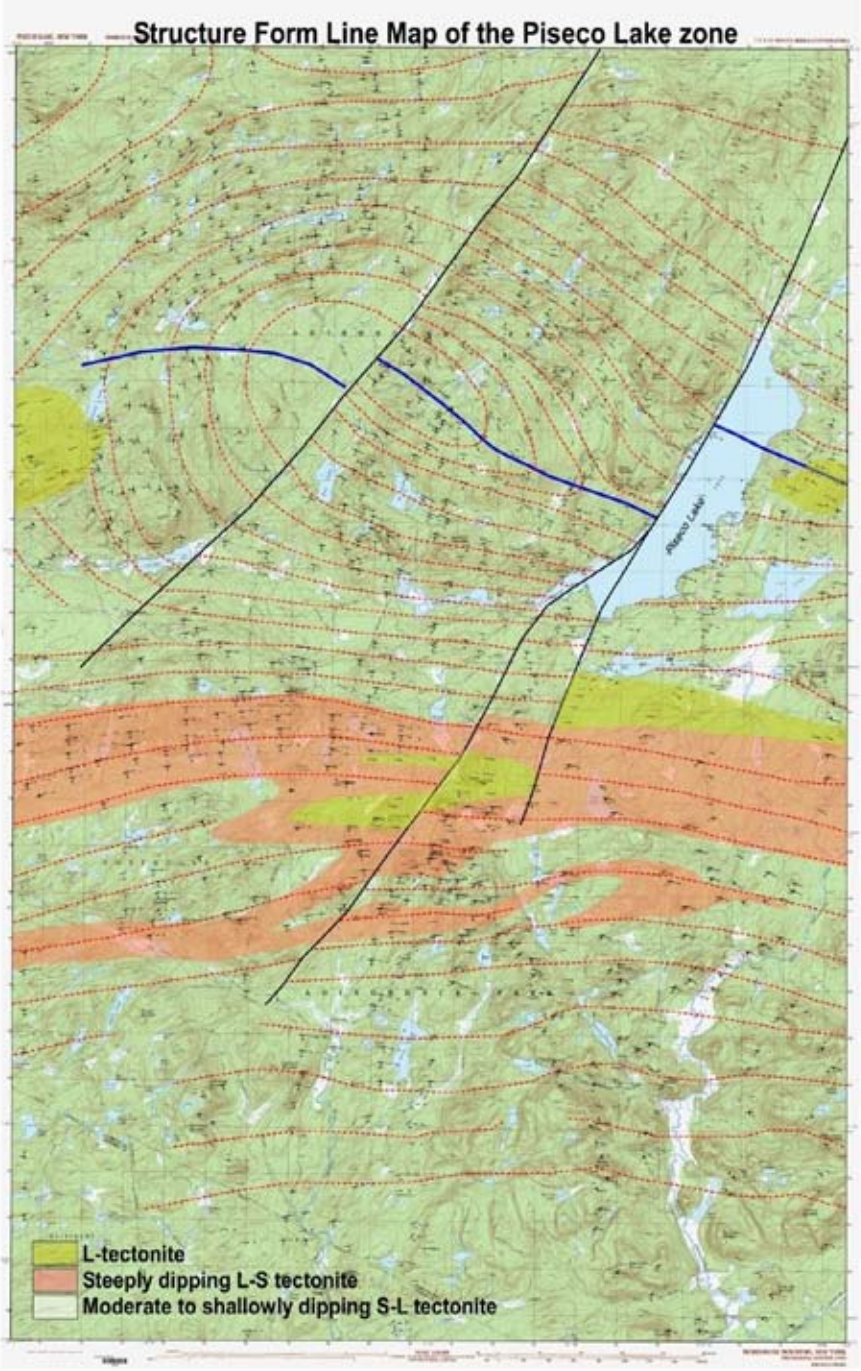

Fig. 1. A structure map that includes both new and already published data for the type locality of the Piseco structure was compiled. This map shows the fabric variation though the region (after Valentino et al. 2008).

Kinematic analysis in both hand sample and microscopic scale are indicative of sinistral shear sense throughout the region, in both the dome and mylonite zone. Recently a model of sinistral transpression was developed and proposed as the mechanism of structural formation (Fig. 2). The area of interest is the steeply dipping mylonite zone to the south dominated by highly lineated

quartz ribbons in granitic gneisses and shows a progression from weakly deformed to ultramylonitic textures (Fig. 3).

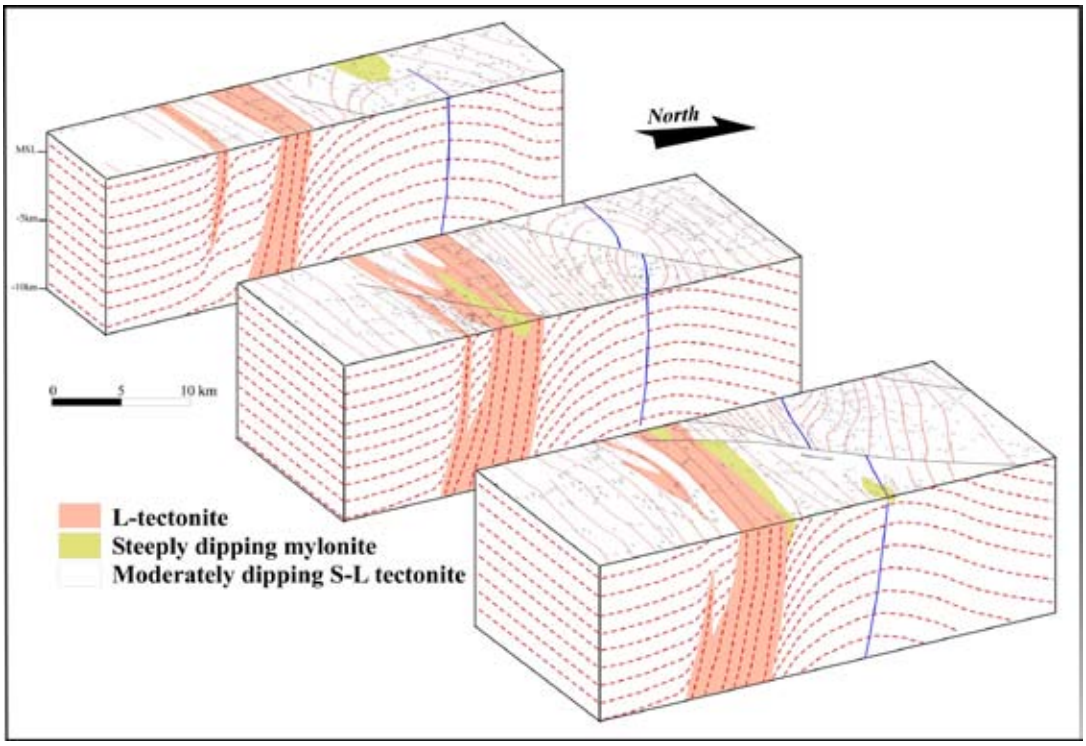

Fig. 2. This structural model summarizes the Piseco zone in the type location near Piseco Lake. Note that the antiform is discordant with pervasive lineations. The asymmetry of the antiform, relative to the regional transport direction, is consistent with the transcurrent sinistral kinematic indicators documented throughout the zone (after Valentino et al., 2008).

A quartz petrofabric analysis was performed on seven different thin sections throughout the steeply dipping mylonite zone as well as a sample several kilometers away, seemingly unrelated to the zone of interest. Using the universal stage to determine quartz c-axis orientations, the goal was to better determine just how these ribbons formed.

II. Methods

The methods employed in conducting the microstructure and shear sense analysis on the type locality of the Piseco Lake shear zone consisted of cutting several samples for thin section. Next I looked at thin sections for metamorphic index minerals and quartz ribbon morphologies. For this analysis I employed the use of a Nikon petrographic microscope and a camera attached to take photomicrographs. I then performed the c-axis analysis with the use of a Nikon universal stage. As I obtained c-axis orientations, I plotted them by hand on a stereonet then using the Stereowin computer program plotted them using the universal stage feature. I then compared the composite plot of all seven samples and compared them to reference standards to deduce shear sense in the region.

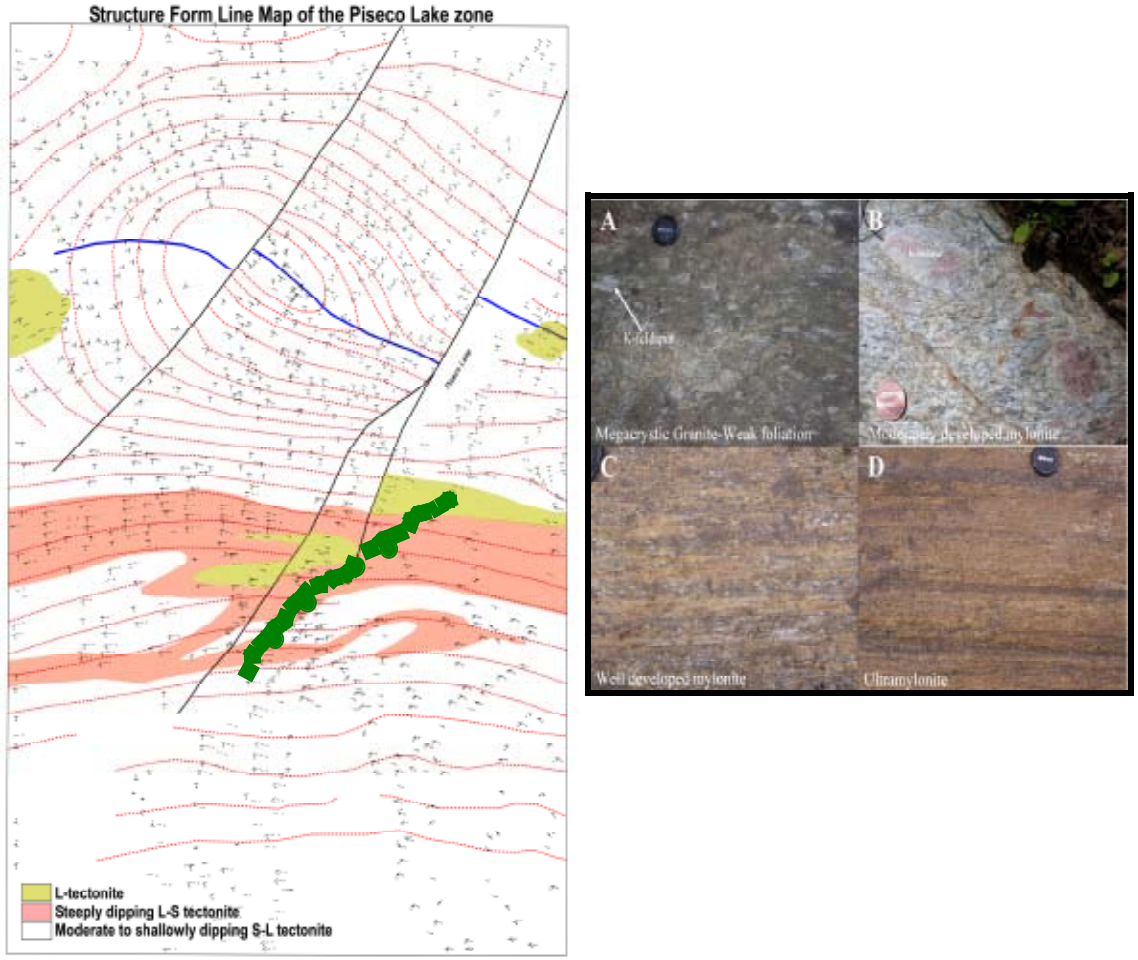

Fig. 3. The progression of A-D is from north to south. The photos shown here correspond to each map locality. The view for all of these photographs is into the ground with the foliation and lineation aligned left-right. As before, A shows the weakly deformed megacrystic granite. Some of the primary feldspar crystals are upward of several centimeters in diameter. B shows moderately developed mylonite, and the relict feldspar megacrysts remain, but are well rounded. C shows well developed granitic mylonite, and only small fragments of the original feldspar grains persist in a fine grained matrix. Domains of very fine quartz and feldspar appear as dark layers in photograph D. These domains are ultramylonite. These photographs well represent the transition across the zone of steeply dipping foliation that occurs on the southern flank of the Piseco zone.

III. Geochemistry and Geochronology

Some preliminary geochemistry and geochronology have been performed on the Piseco Lake rocks. Samples from both the core and antiform were plotted on an An-Ab-Or diagram (Fig. 4) and both plot in the granite field. One sample was also collected from the intersection of Rt. 8 and Rt 10 in Piseco Lake and subsequently analyzed for geochronologic purposes at the University of Arizona. Zircons were imaged using a Scanning Electron Microprobe (Fig. 5) and clearly depict core rim structures suggesting one or maybe two metamorphic events. The core geochemistry yielded low U/Th ratios indicative of igneous emplacement while the rims have a much higher ratio indicative of a metamorphic event (Valentino and Chiarenzelli, 2008). The core age determined using a laser

ablation multicollector was 1169 +/- 7 Ma, while the ages for rims were determined to be 1150 and 1080 Ma. These ages correspond relatively well to the ages obtained for the AMCG suite of rocks in the same area by (Fig. 6) (Hamilton et al., 2004). It is important to remember however that the geochronologic information provided here is only based upon one sample, with more work anticipated later in the year.

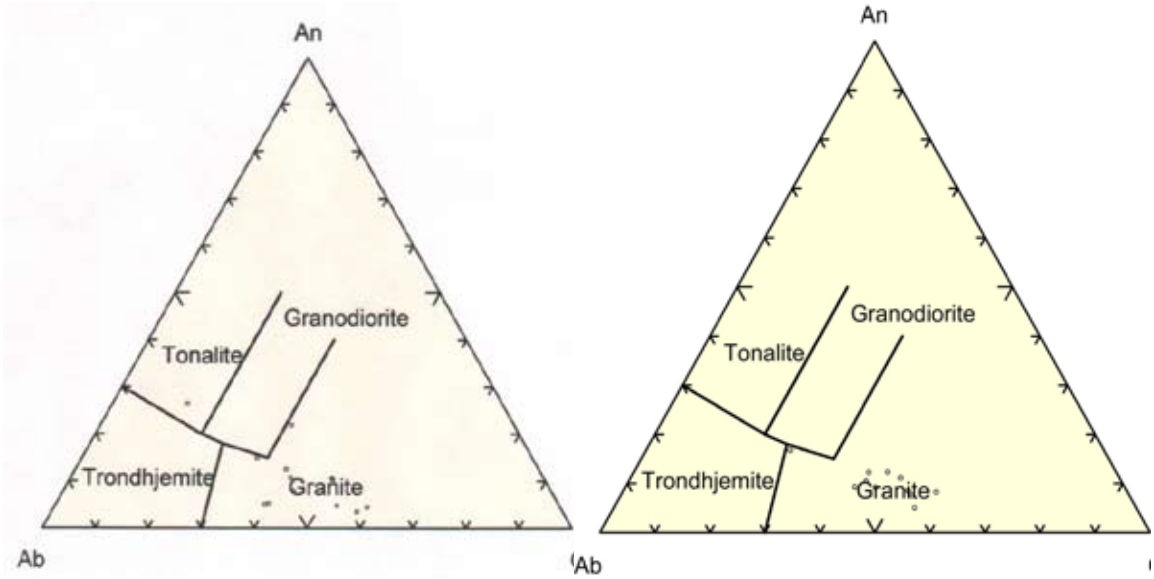

Fig. 4. Both of these An-Ab-Or diagrams show plots for recent analyses for the Piseco core rocks as well as samples from the domain of steep mylonite. Overall, most samples plot in the Granite field. (modified from Valentino et al. 2008).

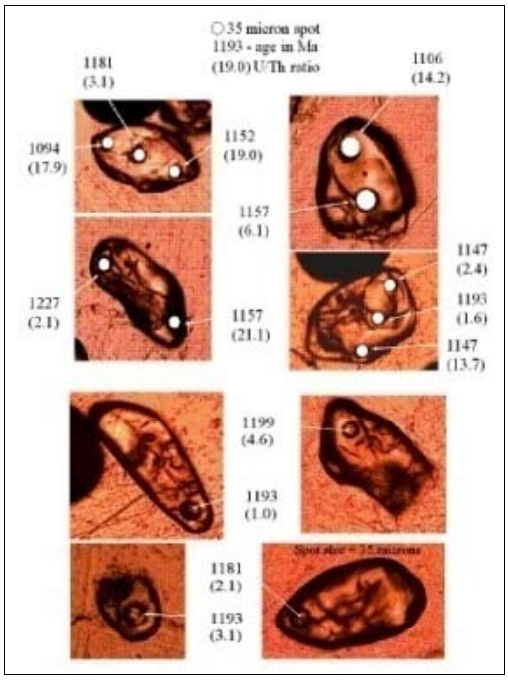

Fig. 5. SEM images of zircons from a sample taken from the intersection of Rt. 8 and Rt. 10, and used to determine the crystallization age of the Piseco granitoids (modified from Valentino et al., 2008).

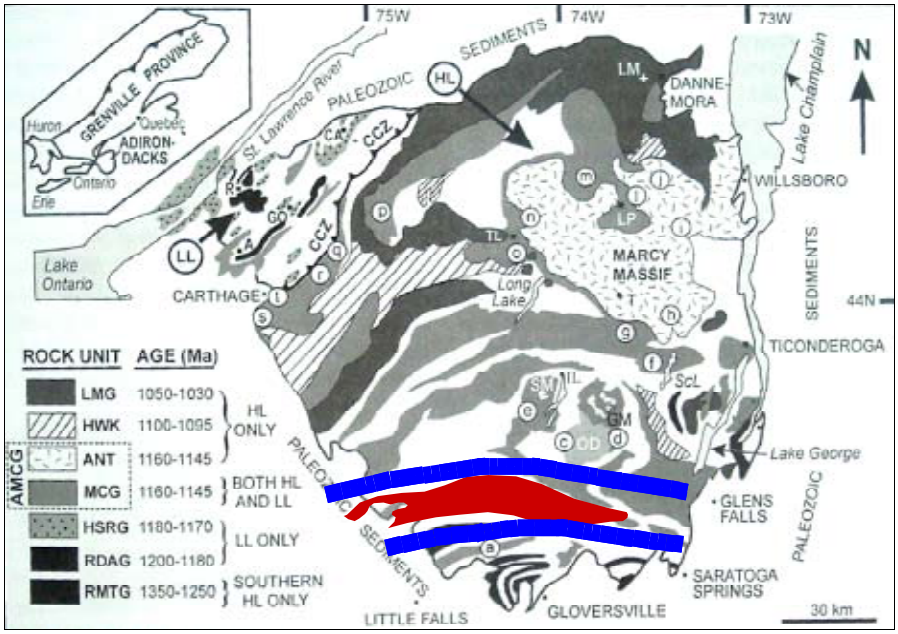

Fig. 6. This map shows the distribution of plutonic rocks in the Adirondacks and their age relationships from Hamilton and others. The blue dashed lines show approximate boundaries of the PLz. The domain with the red overlay highlights the suite of granitic rocks in the core of the Piseco antiform and shear zone. These rocks are megacrystic granitoids that experienced varying degrees of ductile deformation, resulting in varying fabrics. On this map, the P granitic suite is included with the AMCG suite, and interpreted to have an age between 1160 and 1145 Ma (modified from Hamilton et al. 2004).

IV. Quartz Ribbons

There are two different types of lineations, aggregate lineations and grain lineations, both of which exist in the Piseco Lake shear zone. The aggregate lineations are defined by feldspars while the grain lineations define the quartz ribbons ubiquitous through the area and will be the focus of this study. Grain lineations can form in two different ways, by deformation of equidimensional grains without recrystallization or by dissolution and growth (Passchier, C.W. & Trouw, R.A. 2005). In ductile shear zones such as the Piseco Lake shear zone it is thought that the lineations align with the longest strain axis in the X direction, therefore “direction of tectonic transport” or shear sense can be indicated (Passchier. 1998).

The quartz ribbon morphology can be seen clearly in outcrop, hand sample and microscopic scale. When viewed closely in hand sample we see the ribbons crystallize in a wave like shape around recrystallized feldspars many of which can be used to indicate shear sense (Fig. 7). They can be several centimeters in length and take on different morphologies. The quartz ribbon texture associated with such a high degree of strain is typically of a dynamically recrystallized nature. This texture, however, when viewed microscopically is not what we see. Instead we see long optically continuous segments (Fig. 8) with grain boundaries virtually perpendicular to the predominantly recystallized feldspar matrix (McLelland, 1984).

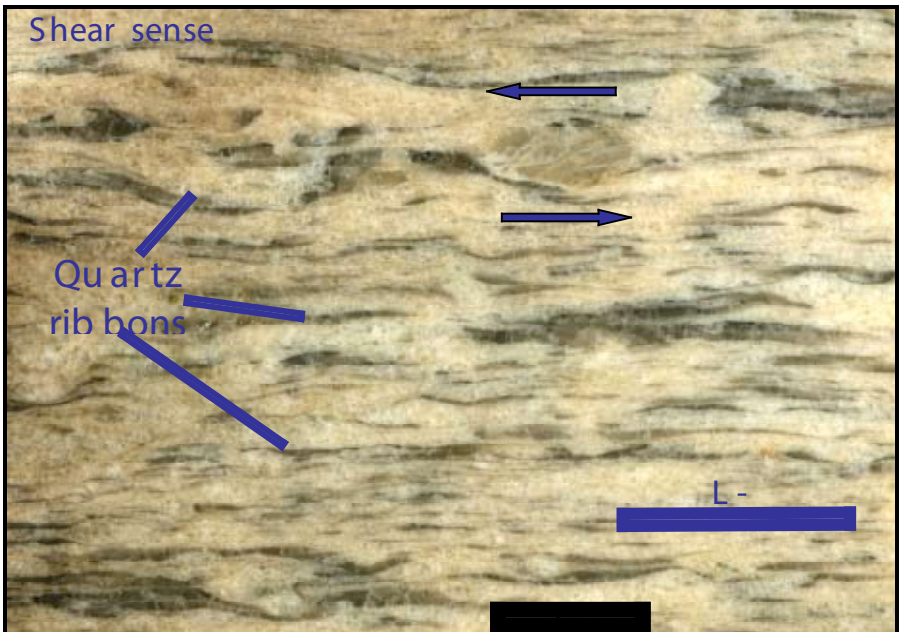

Fig. 7. Hand sample showing ribbon morphologies which define the lineation. They can also serve as kinematic indicators; the top of the photo shows two quartz ribbons wrapped around a relict feldspar grain.

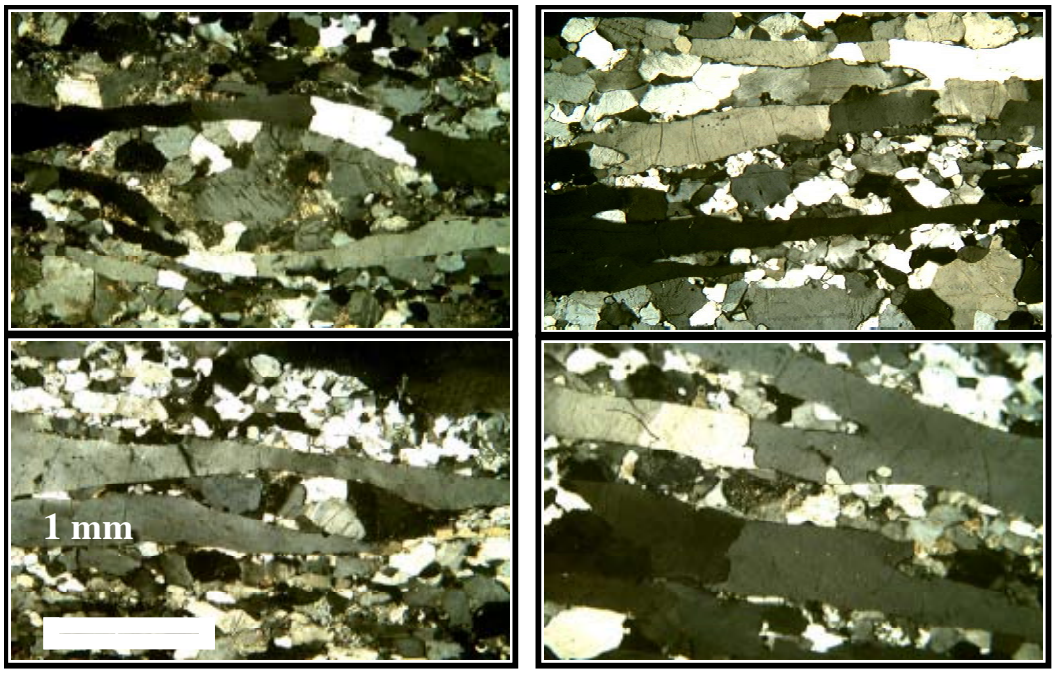

Fig. 8. Thin sections from four different samples showing the difference in ribbon morphology as well as further kinematic evidence shown in the two photos on the left and bifurcating ribbons shown on the right.

The quartz c-axis analysis performed on these samples was done so to better constrain the formation of quartz ribbons throughout the region. The results surprisingly were very consistent forming single girdle patterns plotting stereographically sub-perpendicular to the marcroscopic shear zone boundaries (Fig. 9). One vein was also analyzed for c-axis patterns and yielded the same results as the ribbons (Fig. 10). This vein displayed a different extinction pattern than the ribbons. Instead of long optically continuous grains the vein showed a patchy extinction likely caused by intragranular growth of quartz grains. Despite a difference in ribbon morphology the results for all the samples were the same and even concurrent with one sample analyzed to the north of the shear zone. A composite plot was put together for all the samples and is shown in (Fig. 1)

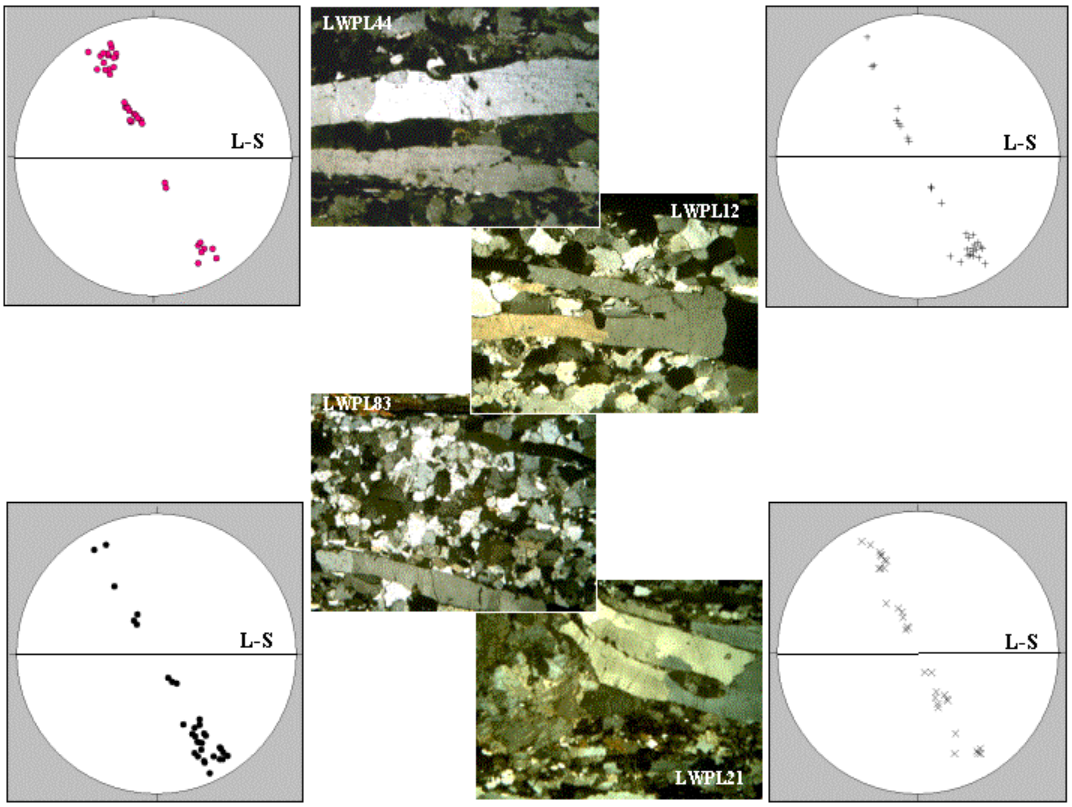

Fig. 9. Four different samples and their corresponding strerographic c-axis plots displaying single asymmetric girdle patterns.

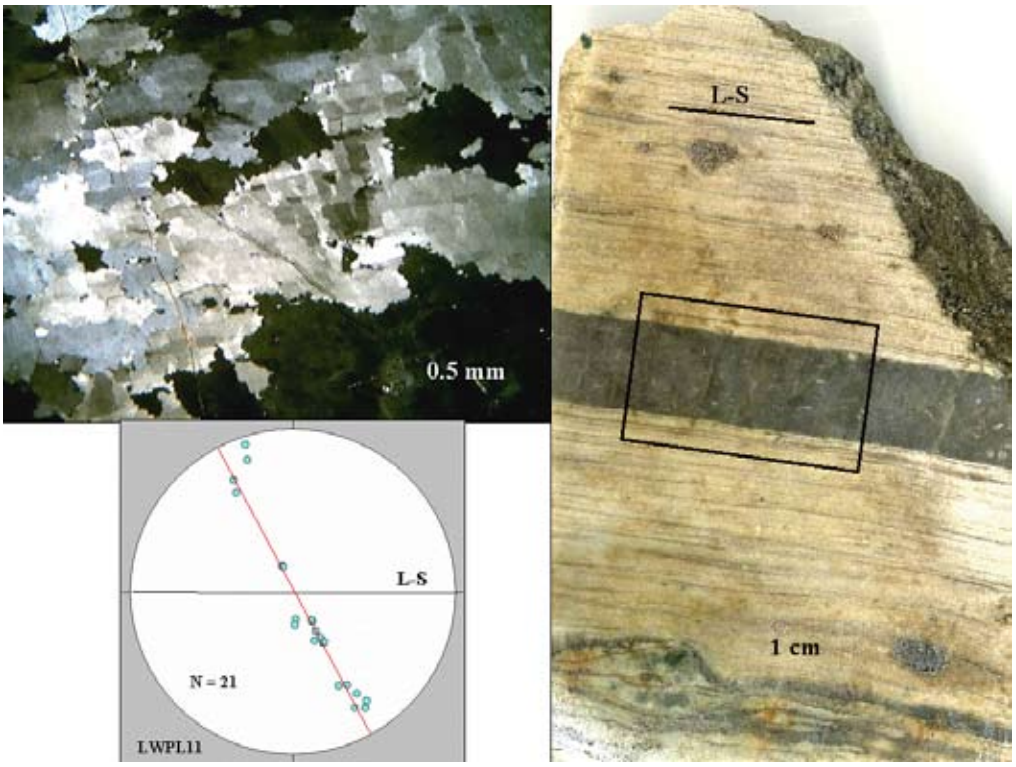

Fig. 10. This is a photomicrograph of the sheared quartz vein. The black box on the hand sample delineates where the sample was cut for thin section. Although the vein has a macroscopic lineation and foliation, microscopically, the texture is not typical for dynamically recrystallized quartz. Instead it shows continuous grains with subgrains forming within responsible for the patchy extinction throughout the vein. Despite the drastic textural differences between the ribbon lineations and this vein, the quartz c-axis orientations are consistent relative to the macroscopic fabrics and consistent with all the other samples.

V. Mechanism of Formation

When discussing strain in mylonite zones, simple shear is typically the path of formation suggested (Law et al., 1990). Ramsay and Graham (1970) have performed theoretical geometric analyses concerning foliation and lineation formation within shear zone boundaries. Further theoretical studies have been conducted in quartz-rich tectonites similar to the steeply dipping mylonite zone of focus in this study. In general it seems as though the relationship between quartz a-axis and c-axis patterns as well as foliation and lineation are reliable shear sense indicators (e.g. Etchecopar 1977, Lister and Hobbs 1980, Etchecopar and Vasseur 1987). From this work a relationship between fabric and kinematic framework was proposed for simple shear conditions and subsequently modified by (e.g. Bouchez 1978, Burg and Laurent, 1978, Bouchez et al. 1979) to the following criteria: with the dominant direction of quartz crystallographic slip being along the a-axis the orientations would align roughly parallel to the bulk simple shear direction. C-axis orientations would in turn align themselves sub-perpendicular to the bulk simple shear direction, much like the pattern seen on the composite plot of c-axes from the steeply dipping mylonite zone. Using comparative analysis with the Twiss and Moores (2007) reference standard for c-axis orientations as indicators of shear sense

we can draw some conclusions between the Piseco Lake data and their reference standard (Fig. 11). However, considering the reference standard model is based upon quartz veins and the quartz ribbons are intermingled in a matrix of dynamically

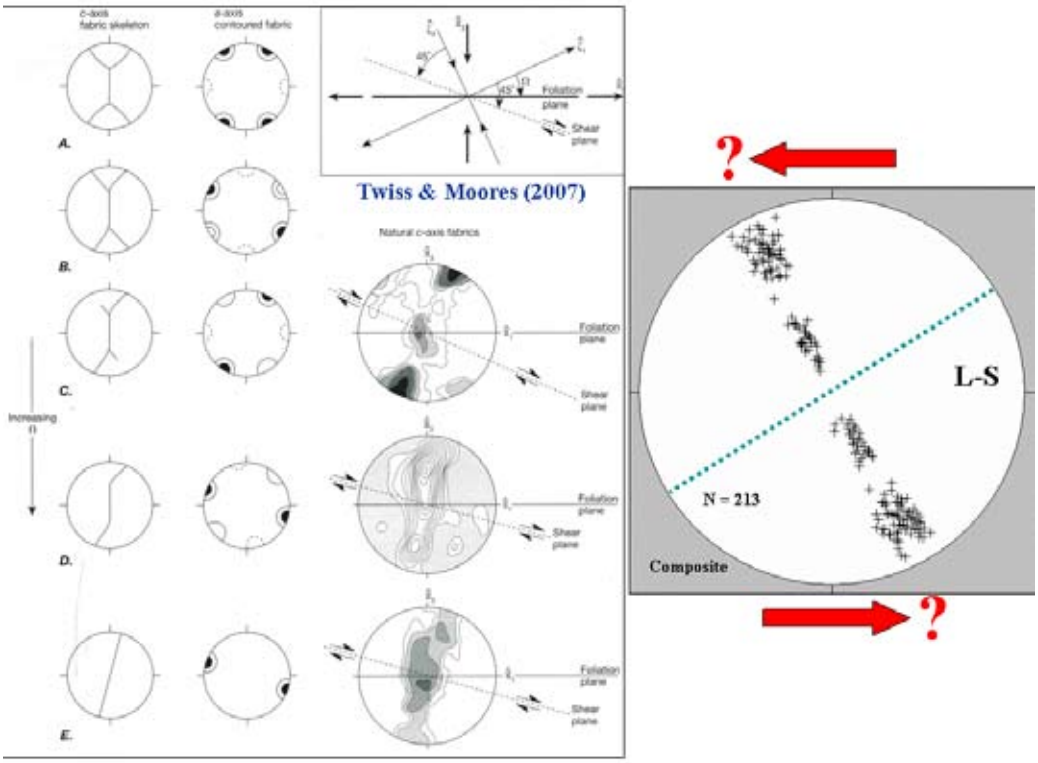

Fig. 11. The composite plot of all c-axis orientations on the right is compared to the Twiss and Moores (2007) reference standard on the left. Model E. is closely related to the composite plot and may be a shear sense indicator.

recrystallized feldspar this comparison may or may not be valid. Assuming its validity however, provides yet another strong indicator or sinistral shear.

Exploring the c-axis fabric patterns further we can begin to infer how the quartz ribbons formed. As previously stated these textures are not typical of dynamically recrystallized fabrics. Their rather straight grain boundaries and lack of undulatory extinction suggest they are virtually strain free grains (McLelland 1984). I will entertain two different mechanisms of formation for the crystallization of these quartz ribbons. The first of which is a recovery texture due to late-post deformational annealing. The annealing process can be sub-divided into two different stages and is caused by a decrease in differential stress. First is primary recrystallization which occurs as a result of reduced strain energy and replaces highly deformed grains with virtually strain free ones with straight grain boundaries like seen the photomicrographs from the Piseco Lake shear zone. The next stage is secondary recrystallization when the smaller grains become eliminated by the larger grains to form several large essentially strain free grains (Twiss and Moores, 1992). Since the stereographic projection of the quartz c-axis fabrics indicate the presence of non-coaxial simple shear if we assume comparison between the reference standard and the composite plot is valid, it is clear that some stress was still present allowing the c-axes to preferentially align sub-perpendicular

to the bulk simple shear direction. Therefore I propose that these quartz ribbons preserve the last bit of ductile shear strain from the Piseco Lake shear zone.

There is also another mechanism of formation which may be entertained, which is veining. Is it possible that these ribbons are simply veins which crystallized in a sinistral shear couple? One could argue this point by examining the mineral correlation across ribbon boundaries such as those in (Fig. 12). When comparing the the grain boundary shape of some of the quartz ribbons it almost seems possible that some on them may be conjugate boundaries which were once together and opened during a dilational event. This mechanism would rather well explain the optical continuity of many of the quartz grains, the branching nature of some of the ribbons, as well as the straight grain boundaries typically seen. It is important to note however that the if veining were the case, bulk chemistry from these samples would likely show excess silica content which we do not see in these rocks. It is worth nothing, however that we are hard pressed to find the presence of quartz disseminated throughout the predominatly recrystallized feldspar matrix. Therefore, it may be possible that the excess quartz may be concentrated in the veins.

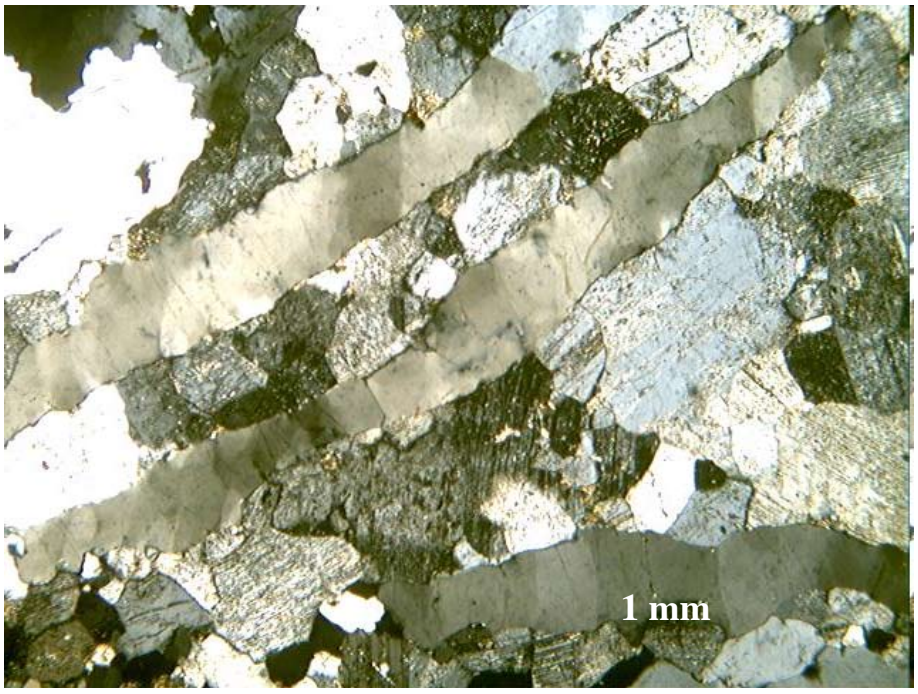

Fig. 12. This photomicrograph is an example of how minerals may correlate from one side of the ribbon to the other, possibly suggesting veining

The temperature at which these ribbons formed is also a point of discussion. Generally the presence of metamorphic index minerals is not well dispersed throughout the samples, but when they are seen they range from chlorite to garnet, clearly indicative of a retrograde event (Fig. 13). We see the presence of chlorite along the boundaries of quartz ribbons as well as retrograded garnets on the edge of the quartz vein. The garnet is typically altered to biotite. It is not typical to see index minerals indicating a metamorphic grade higher than upper greenschist facies, therefore it is likely

these ribbons or veins formed at a temperature of about 450-550 C. This is a preliminary hypothesis which could again be supported by supplemental studies to better constrain temperature conditions.

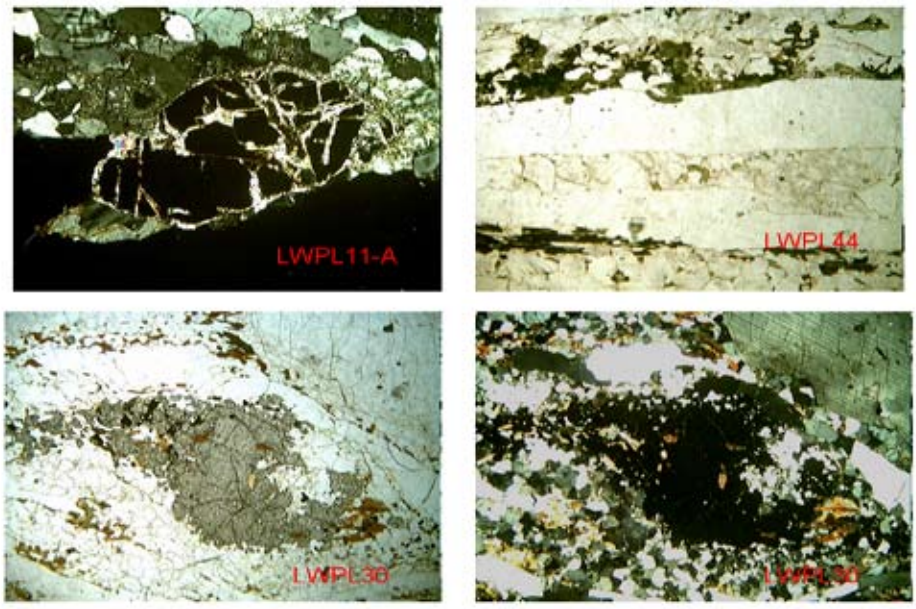

Fig.13. The horizontal field of view for all of these photomgcrographs is 5 mm.. The metamorphic index minerals, chlorite, biotite and garnet, in these photos suggest upper greenschist facies metamorphic conditions. The bottom photo is also another shear sense indicator. The photo in crossed polarized light also shows quartz ribbons wrapped around the garnet.

VI. Conclusions

C-axis analysis of the quartz ribbon lineations produced results to my surprise. I hadn't anticipated such concordance in data between samples and locations. From these results we can once again conclude these fabrics formed as a result of sinistral transcurrent conditions. More importantly the concordance of the samples from the steeply dipping mylonite zone as well as the sample to the north might suggest the presence of a regional sinistral stress field. More c-axis work is needed to neither confirm nor deny this regional hypothesis.

Two viable models have been proposed for the formation of quartz ribbon lineations in the southern Adirondacks. The first model is late-post deformational annealing and the second is quartz veins which crystallized in a sinistral shear couple. With further work may be needed to obtain temperature of crystallization values. If these values are obtained it is than more likely that we can assume one model of formation over the other.

VII. Acknowledgements

I would like to take the time to thank my parents, Christopher and Antoinette Williams, for all their support during my undergraduate research. I would like to thank my advisor, Dr. David Valentino for his help and guidance on my research project. I would also like to thank my field partner, Mike McHarris, who worked with me in collection of rock samples for this project. Lastly I would like to thank my peers in the geology program at SUNY Oswego.

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MAGNETIC ANOMALY MAPPING AND SUBSURFACE MODELING OF ONONDAGA LAKE, NEW YORK

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Department of Earth Sciences
(Helen Bohmer Daly Quest Award for Undergraduate Student Scientific Research Winner)

Onondaga Lake, Syracuse, NY, is a relic of a system of proglacial lakes that formed during the glacial retreat about 14000 years ago. The lake is similar in morphology to the Finger Lakes, which are formed in the joint sets of central NY. Onondaga Lake has serious environmental issues that are related to industrial activity over the past century. A high-resolution magnetic survey was conducted on the lake to produce a magnetic anomaly map followed by subsurface geologic models. The field survey used a magnetic gradiometer with built-in GPS, and an inflatable motor boat. Previous testing showed that the motor boat has no effect on magnetic readings. Onondaga Lake covers ~18 sq km, and generally has an elongate shape. The survey involved short back and forth sweeps across the width, in addition to three cross lines along the length of the lake. At an average survey speed of 30 km/hr, the data points were collected (5 per sec) at an average spacing of 1.7 m. The total survey time was ~2.5 hours. Survey data was cleaned to eliminate incomplete reading due to instrument error and extreme magnetic anomalies (possible man-made objects on the lake bed). Data correction for diurnal variation was completed with repeat readings at a common point. The data was also analyzed at cross points to look for major differences. Of the ~33000 collected data points, ~31500 were used in the modeling. A magnetic anomaly map was produced using a smoothed, minimum curvature protocol. The anomaly maps showed that the lake resides over two magnetic gradients. One gradient runs parallel to the long axis of the lake, with the higher magnetic values at the NNW end of the lake and gradually lower toward the SSE direction. The second gradient runs perpendicular to the trend of the lake. This gradient trends WSW to ENE with the higher magnetic values on the western side of the lake. There is also a narrow magnetic lineament that extends form the northern end of the lake to the middle.
The following conclusions have been reached thus far. The general N-S gradient may be explained by rock formations containing substantial evaporites under the southern end of the lake. The narrow magnetic lineament may be a sediment track from the Solvay waste beds located on the western shore, which coincides with the high anomaly. The calcium carbonate from the waste beds may be being transported from the waste beds out of the lake.

I. Introduction

Onondaga Lake resides in the Onondaga trough (Fig. 1), which is a glacial scour from the Pleistocene. The scour was filled in by glacial sediment, and more recently by lacustrine deposits. The sediment in the trough consists of a bottom layer of sand and gravel, which is underneath a layer of silt and sand. This in turn is sit underneath lake deposits in the form of silt and clay. The underlying bedrock

is the Silurian Salina group. This group is comprised primarily of shales, carbonate and evaporite layers (Kappel and Yager, 2008).

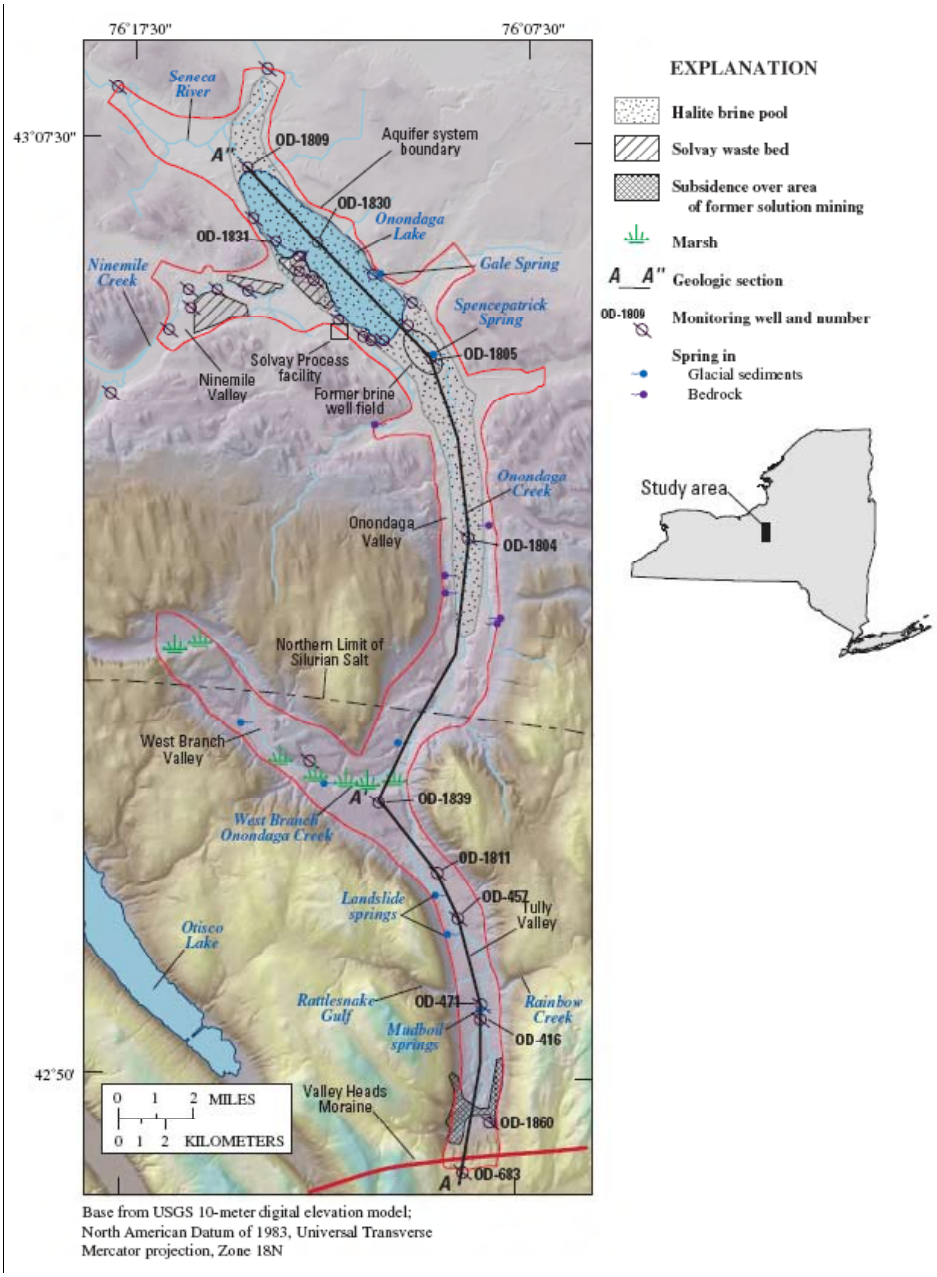

Fig. 1. Map of Onondaga Lake, located at the northern end of the Onondaga trough (Kappel and Yager, 2008).

Onondaga Lake is fairly flat bottomed and shallow with maximum depth about 20 meters. As Syracuse and outlying towns developed around the lake, the evaporite deposits were a major economic resource in the form of salt mining. As industry continued to move into the area, factories

started production around the lake and used it as a waste dump. A significant source of waste came from soda ash manufacturing, the byproducts, calcium carbonate and Na/Ca-Chloride, were dumped adjacent to the lake. The lake eventually became so polluted that swimming and fishing were banned in the mid to late 1900's. Since that time, clean up projects have tried to make the lake more suitable for life and healthy recreation (Onondaga lake partnership).

Magnetic surveys are a useful geophysical tool when examining features that can not be seen, in this case, magnetic fields (Lillie, 1999; Berger et al., 2006; Arisov et al., 2007). These fields can be used to examine subsurface geology in non-invasive ways that result in no significant influence on the environment. In a sense, it is a "leave no trace" research method. When examining magnetic fields, several things need to be taken under consideration. One is the diurnal variation, which is changes in the overall magnetic field depending on the time of day due to the relationship with the given location and its angle to the Sun. Mid-day field values can be higher for a given point due to the direct influence of the Sun. Another variable to consider is anthropogenic, or human related, objects in or near the survey area. Metal objects can cause the readings to spike, giving real data but not necessarily what is being studied. Magnetic survey are useful in the search for ore bodies and other features that may sit on top of a rock layer, or lake bottom, in areas that cannot be physically looked at without excavation (Berger et al., 2006). During this investigation, a high-resolution magnetic gradiometer survey was conducted on Onondaga Lake with the goal to produce a comprehensive model of the subsurface geology, and to explore for possible materials related to the long history of waste dumping into the lake and along the shore regions.

II. Methods

The survey employed the use of a GEM walking gradiometer. The gradiometer was mounted on an inflatable boat seen in Fig. 2, which was found to have a negligible effect on the magnetic reading. The system has a self tracking GPS and two sensors. The lower sensor measures the overall magnetic field, while the upper sensor measures the gradient. The survey was taken on a calm day, so there was very little up and down movement during the survey. The data track from the survey can be seen imposed on the map. Data was collected in a fashion that would allow high resolution coverage (Fig. 3), covering most of the lake while taking 5 readings per second. As the track shows, there are long lines of data that cover both the length and width of the lake, allowing for accurate cross sectional models. There was a common point at the north end of the lake that was crossed at the beginning, middle and end of the survey to measure diurnal variation, which ended up being only a couple of nano Teslas (nT).

The completed survey yielded approximately 33,000 data points. About 200 data points were visibly erroneous or incomplete and were purged before contouring took place. The diurnal variation was corrected and the data was contoured using a minimum curvature grid. When the data was filtered more, approximately 31,500 of the data points fell into a range of only 300 nT. A second contour map was created using the same contouring protocol. The data was mapped using the magnetic anomaly. This is found by averaging the data used and subtracting it from every value used, which causes the data to be represented as a value compared to the average.

Fig. 2. Photograph of the GEM-19GW Walking Gradiometer being mounted on the bow of an inflatable 14' Sea Eagle motorboat with 18hp, Tohasu outboard motor.

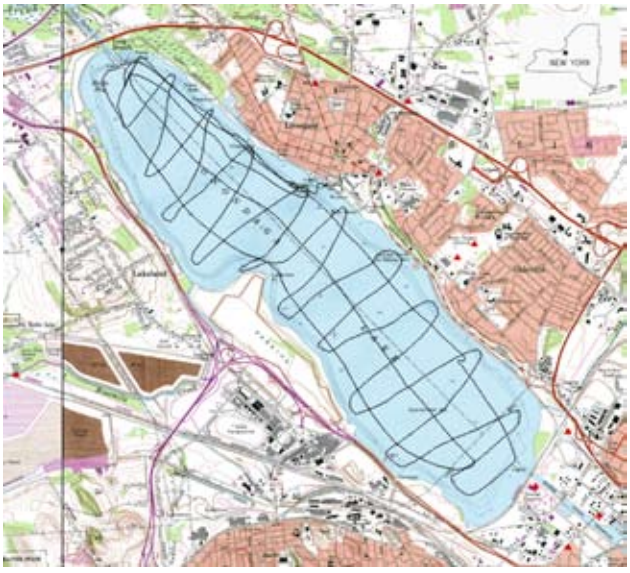

Fig. 3. Topographic map of Onondaga Lake and the surrounding area. The black track shows the path of the magnetic survey.

III. Results

The first anomaly map (Fig. 4) had values ranging from over 7000 to -12000 nT/m off the average value. Looking at the map, it is visible that the values appear as peaks in the lake. Given the history of the lake, including possible fragments from a jet crash in the mid 1900's, it is likely that these are point features caused by debris, not part of the actual subsurface geology.

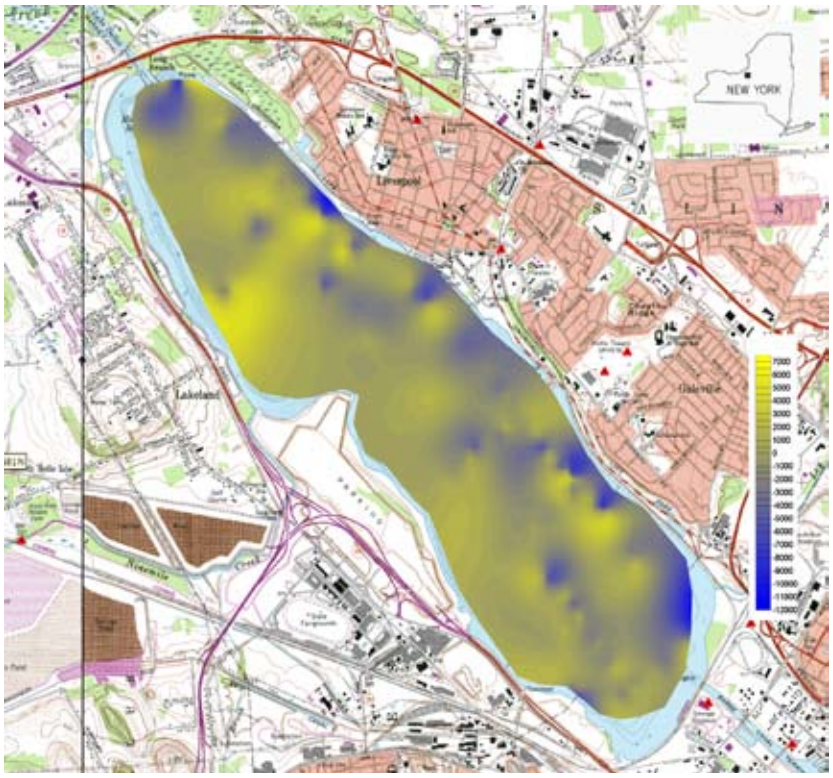

Fig. 4. Contour map of the vertical magnetic gradient on Onondaga Lake. Map units are in nT/m.

The second map (Fig. 5), with the 300 nT variation proved to be better. This map is much smoother and can accommodate a smaller contour interval, providing more detail. There is a high to low anomaly trend that starts at the north end of the lake and continues to the south end. This is expected since the southern end of the lake is close to the evaporite deposits. This in addition to the small anomaly interval indicates that this is most likely the magnetic field of the lake structure. The one major unknown in this map is the cause of the high anomaly in the northern half of the lake. The anomaly starts mid way up the western shore of the lake and appears to stretch to the middle of the lake before continuing north-northwest along the long axis of the lake. The anomaly is also seen on the northwest shore of the lake.

When looking at the bathymetry of the lake, it is apparent that is fairly flat bottomed and moderately steep on its sides. The linear magnetic anomaly on Fig. 5, is not seen in the bathymetric map, which indicates that the high anomaly in the lake is independent of lake structure. This indicates that the anomaly is either a new small feature on the bottom of the lake or possibly a buried feature under the sediment.

The possible answer for the cause of the magnetic anomaly came in the form of the white colored sediment beds. These are the Solvay waste beds, which are the product of the soda ash production. You can see the straight, flat beds along these small cliffs, which trace down a good portion of the western shore. The Solvay water beds occur in the middle of the lake on the western shore. These appear to correspond with one of the high magnetic anomalies. The northwest shore of the lake is a dredge spoils area, and also correlates with a high magnetic anomaly. There is no mapped waste bed or dredged area that explains the linear anomaly in the middle of the lake.

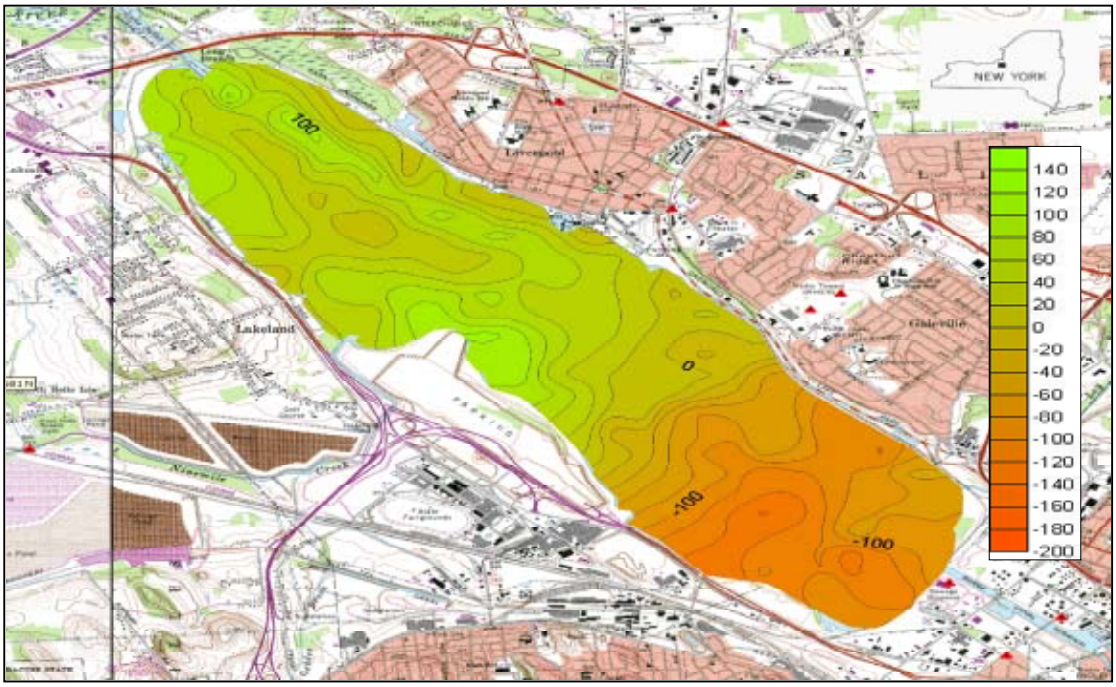

Fig. 5. Magnetic anomaly map of Onondaga Lake (nT).

Google Earth imagery of the waste beds (Fig. 6) clearly shows the white colored sediment. It is also apparent that there is visible run off of sediment into the lake. This run off is significant

Fig. 6. Air photograph from Google Earth showing the western shore region of Onondaga Lake where Nine Mile Creek flows into the lake. This region is known as the Solvay waste bed and the waste can be seen as a sediment plume along the shore line. This is evidence that the waste bed solids are being dispersed through surface run-off.

coming off the portion of the western shore that juts out in to the lake. It appears in this map that the high anomaly is directly related to the waste beds and waste that is dispersed into the lake.
To further explore the lake structure and anomaly, the magnetics were used in conjunction with the cross section presented by Yager et al. (2008) using well logs. The cross section shows the Salina group covered by a thin layer of sand and gravel, and the entire sequence is covered by lake silt and clay. Overall the bedrock surface is inclined toward the south. The overall magnetic field of the lake also decreases toward the south (Fig. 5). The relationship between the two indicates that the bedrock is the primary control over the magnetic field in the area.

The first cross sectional model (Fig. 7) extends from the northern end of the lake toward the southern end of the lake. This line avoids the high anomaly in the northern half of the lake. It runs between the dredge spoils area in the northwest and the linear anomaly to the east as well as crossing the area of the lowest magnetic field in the high anomaly in the middle of the lake right here. The high anomaly is avoided to try and constrain the overall magnetic field of the lake based on the known structure of the lake. If the bed rock is indeed the control over the magnetic field, then mapping the apparent deviation from that relationship will skew the model. This will isolate the anomaly, allowing the anomaly to be manipulated on top of the known lake structure.

The first thing to notice is that the overall magnetic profile above follows very closely the modeled depth to bedrock in the cross section below, once again indicating that the bedrock is the major magnetic feature. The overlying sediment is comprised primarily of sand, silt and clay, which would have low magnetic susceptibilities, so since they are all so low and so similar, they will have little effect on the magnetic profile. There is one deviation from the relationship between

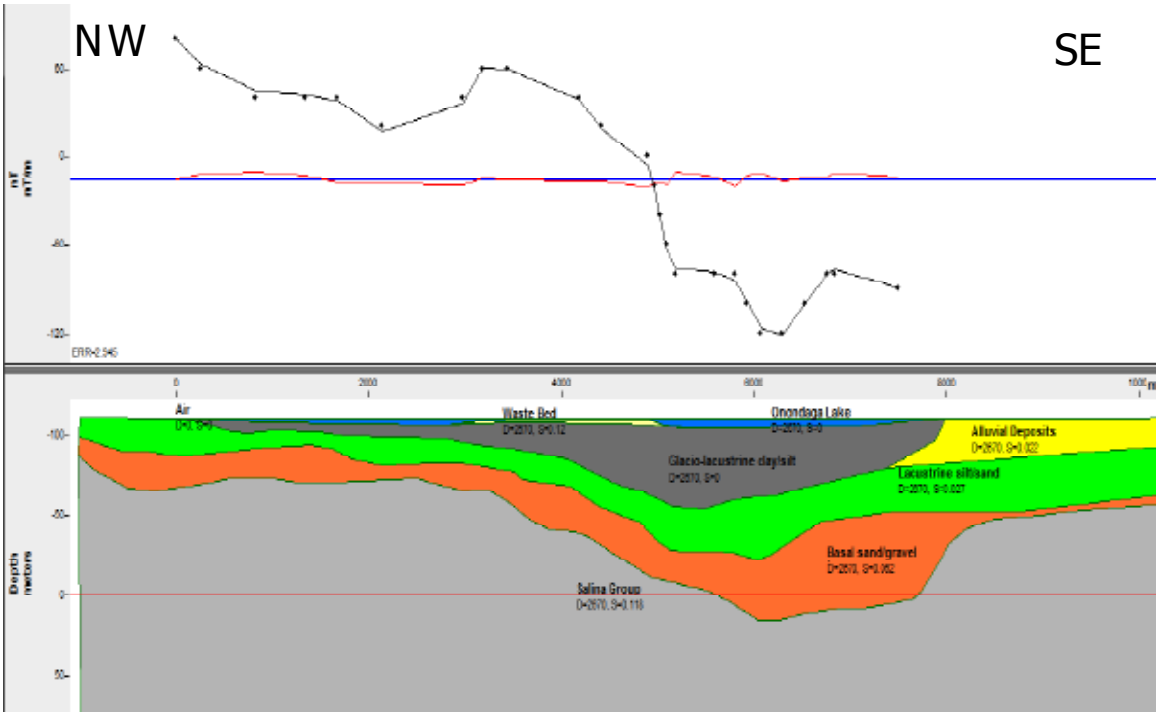

Fig. 7. Magnetic profile and model for the long axis of Onondaga Lake. The thin yellow body in the center of the modeis proposed to be Solvay waste bed materials in the lake.

the bedrock and the magnetic profile in the middle of the lake. This corresponds to where the line crosses the high wasted bed anomaly. The anomaly is about 30-40 nT higher than the profile, which when compared to the overall 300 nT range of the anomaly, isn't much. This in conjunction with the low susceptibilities of the under lying material as well as the small difference between the individual layers, allows the anomaly to be modeled with a small amount of material with a relatively low susceptibility. Interpreted as a waste bed, a thin veneer of waste bed material, which is comprised of soda ash byproducts, consisting of calcium carbonate, calcium chloride and sodium chloride, was placed into the model and the susceptibility was manipulated until the model fit. The susceptibility of the thin layer in this model is lower than that of the Salina bedrock. Since the first model appears to be a good control over the lake structure and susceptibility, those same values can now be used on other line to explore other features on the lake.

To further explore the anomaly, a magnetic profile along the short axis of the lake was modeled. This profile crosses both the high anomaly on the west side of the lake and the long linear anomaly located on the east side of the lake (Fig. 8). The line crosses the anomaly in a portion of the lake that has a constant magnetic gradient in the sections outside of the anomaly. This will make the bedrock and underlying sediment almost flat across one horizon in the cross-section, putting an extreme emphasis on the anomaly in the magnetic profile. Also, the two anomalies appear to be identical to each other in value and similar in structure.

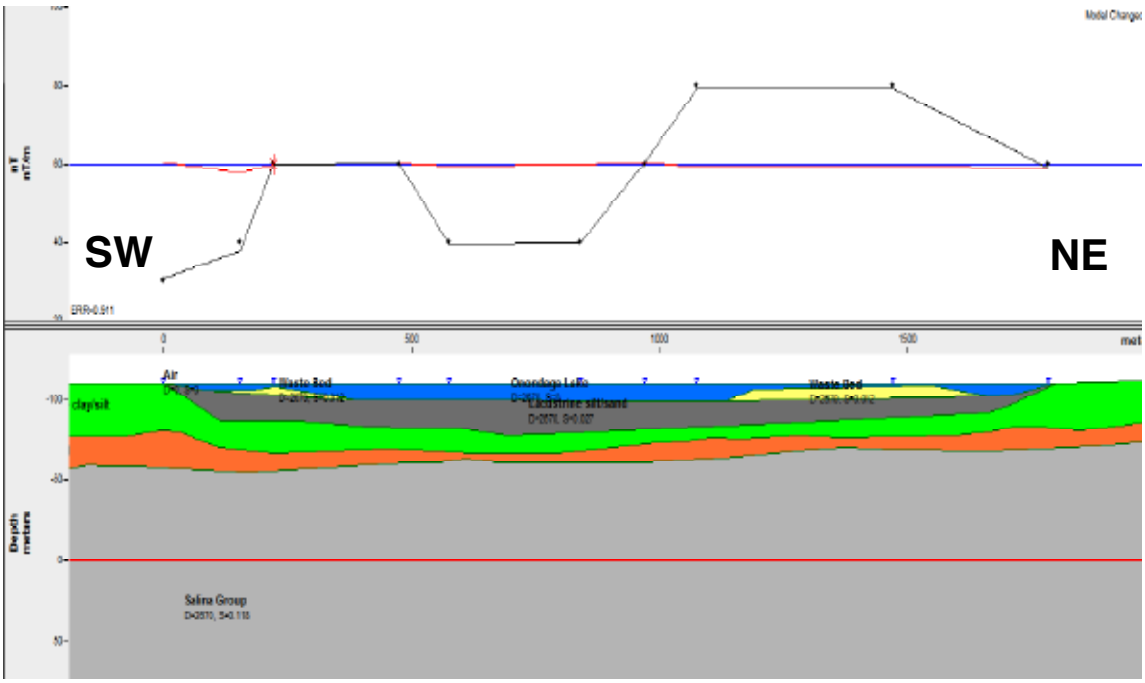

Fig. 8. Magnetic profile and model along the short axis of Onondaga Lake crossing both magnetic high anomalies discussed in the text. The yellow bodies are proposed to be waste bed materials associated with the Solvay waste bed.

Magnetic susceptibility values used in these models were identical. You can see that the stratigraphy is fairly uniformly on one horizon across the lake. Assuming that, the anomalies are similar, they are most likely uniform and comprised of the same material, two waste bed layers were modeled. The layer on the right, the southern end of the line, is almost the same as the layer in

line A, but a little thicker since it is closer the shore and has a higher anomaly value. The waste bed on the left, the northern end of the line, is the linear feature that runs up the middle of the lake. This feature is more of channel-like structure. Both waste beds are once again small and fit the model perfectly where the magnetic profile deviates from the profile of the bedrock. As a check to make sure the two cross sections were structurally reasonable before final interpretations were made, a simple depth to bedrock map was created using the depths from the lines. When compared to the cross section presented by Yager et al. (2008), they are a close match. Essentially, the magnetic data collect and interpreted is consistent with the well log data for the cross-section.

IV. Conclusions

In conclusion, the purged data containing the extremes of the anomaly values indicates a large amount of debris. This aspect of the project is being investigated by separately by another research student. Once again, given the anthropogenic history of the lake, this is entirely plausible. Also, given the negligible magnetic differences in the sediment over the bedrock, the bedrock is most likely the control over the magnetic field in the area, as seen in the cross sectional models and contour maps. The deviations between the magnetic profile and the profile of the bedrock correspond with the location of the high anomalies. When modeled as the waste beds, this deviation was accounted for, once again as seen in the cross sectional models and contour maps. Finally, assuming that the anomaly is indeed uniform and given the fact the fact the linear anomaly branches off of the known waste beds, two interpretations can be made. One, that material from the waste beds is being leached into the lake. This was already seen partly in the brine flow map presented by Kappel and Yager (2008). Secondly, that if the linear anomaly is waste bed material, since the water in the lake flows from the south to the north and the linear anomaly tracks into the mouth of the river at the north end of the lake, then it is likely that the linear anomaly is a sediment flow track form the waste beds, out of the lake.

V. Acknowledgements

I would like to thank Dr. Dave Valentino and Benjamin Valentino for there time and effort in the completion of the survey of Onondaga Lake during the fall 2008. I would also like to thank Dr. Jeffrey Chiarenzelli for the use of the walking gradiometer and for helping to retrieve the data from the device.

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REGIONAL REFRACTION OF JOINTS CONTROLLED BY BEDROCK COMPETENCY: WESTERN FLANK OF THE TUG HILL PLATEAU, NEW YORK

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Sponsor: David Valentino
Department of Earth Sciences
(Bill Bosch Quest Poster Award)

The Alleghanian orogeny, occurred over 350 to 250 million years ago, and caused the formation of the Appalachian Mountains. During this period, the eastern coast of Laurentia underwent a massive amount of stress and several joints with distinct orientations were created in the Appalachian basin, which covers western New York, south to West Virginia. Three generations of joints oriented north-south, northwest and east-northeast were formed, and each orientation represents a change in either the stress direction or the environment that they formed within. The oldest joints are north-south, and they formed from a fore bulge when the orogeny first started. The northwest and east-northeast joints formed around the same time, but the northwest joints are cross joints which were oriented to the bulk compression direction and propagate across the Appalachian basin in a clock wise direction in the North and counter clock wise in the South. The east-northeast joints formed shortly after the northwest joints when the basin experienced crustal fluid influx from the uplift of the mountains, and the maturation of the shale. The fluid decreased the lithostatic stress, which allowed for the formation of joints in the final bulk compression to form. The Tug Hill Plateau of northern New York is part of the Appalachian basin. Recent joint studies in the Tug Hill region reveal a strong relationship between orientations with the main Appalachian basin, but also revealed that local joint orientations may be controlled by the strength of the various rock formations.

I. Introduction

Joints are systematic breaks that occur in bedrock as the result of an applied stress (Twiss and Moores, 2007). The eastern U.S. experienced a major mountain building tectonic event in the late Paleozoic, known as the Alleghanian orogeny. This event was the result of tectonic convergence between ancient North America and Africa. This tectonic event resulted in major faulting and deformation of the crust within the main collision zone, but also caused three dominant joint patterns in the foreland basin (region far from the active mountain system). Each of these different patterns was formed during a distinct stage of the orogeny. The first generation joints formed during the Devonian and have a NS strike, and the second generation joints formed during the Mississippian and have a NW strike. The third generation joints exhibiting an ENE strike were also formed during the Mississippian but were later sheared during the Pennsylvanian Period (Engelder, 2007; McConaughy, 1999; Zhao, 1996; Twiss and Moores, 2007; Engelder, 2006).

Bedrock joints have been well documents for much of the Appalachian basin (Fig. 1), and the general joint pattern changes in attitude from south to north across Pennsylvania and New York

State (Zhao, 1996; Jacobi, 2002). The region of the Tug Hill plateau of northern New York is part of the Appalachian basin, however, it is separated from the main orogenic zone by several hundred kilometers. The objective of this research was to examine the variation in bedrock joints in the Tug Hill plateau to make comparisons with structures in central New York. This work was initiated through a grant from the Institute for the Application of Geospatial Technology in 2007 with a study in the region of Oswego, New York and the Hudson Highlands. The research reported herein was completed during the summer 2008 on the western flank of the Tug Hill Plateau.

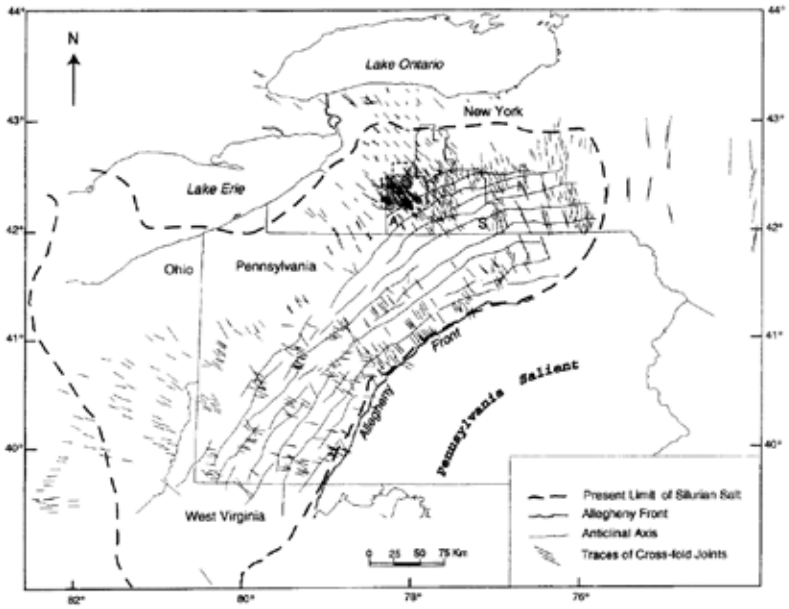

Fig. 1. This is a map of the Appalachian Basin, and the different joint patterns of the area. The Appalachian Basin stretches from Central New York, down to West Virginia. (Zhao, 1996)

II. Joint Analysis in the Western Tug Hill Plateau

The bedrock stratigraphy of the western Tug Hill Plateau consists of Ordovician rocks that vary form limestone, sandstone, siltstone and shale (Fig. 2). Specifically, the oldest rocks are the Middle Ordovician limestone beds of the Trenton Group. They are best exposed in northern most Oswego County and along the shore of Lake Ontario near Henderson Harbor. A thick sequence of shale of the Whetstone Gulf Formation overlies the Trenton Group limestone. It is best exposed in several deep gulfs that occur on the western flank of the Tug Hill Plateau, including Totman Gulf, Mooney Gulf and Loraine Gulf. A gradual increase in siltstone and thin sandstone beds upward denotes the Pulaski Formation. The Pulaski Formation is named for Pulaski, NY and is best exposed in the Salmon River gorge below the Salmon River falls in eastern Oswego County. The top of the Salmon River falls is capped by the erosion resistant thick sandstone beds of the Oswego Formation. The Oswego Formation can also be found along the south shore of Lake Ontario from Ninemile Point westward to the campus of SUNY Oswego. All together, this sequence of rock formation is more than 500 meters thick. The Oswego Formation forms the cap for the Tug Hill Plateau while the limestone of the Trenton Group forms the foundation.

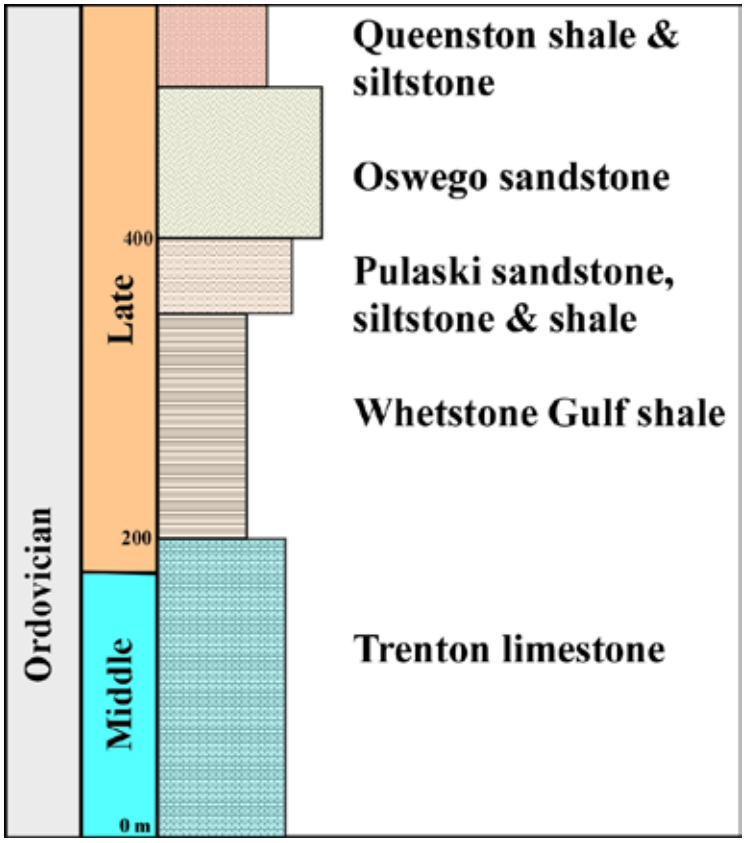

Fig. 2. General stratigraphy for the Tug Hill Plateau region, Oswego and Jefferson Counties, NY.

II.a. Trenton limestone

For the Trenton limestone, joint data was collected at the Lake Ontario edge near Henderson Harbor, where over a hundred foot high limestone cliffs, had broken off and crashed into the lake (Fig. 3). Joint data was also collected along road outcrops, in the creeks, and within gullies of the area. The outcrop was limestone in the northern section of the Tug Hill Plateau, and the geology changed to shale further to the south. There were two dominant joint sets which were NW and ENE, for the limestone, and the limestone layers exhibited almost identical patterns to the Oswego Formation (such as the orthogonal joint pattern).

II.b. Whetstone gulf formation

The Whetstone Gulf Formation is shale and has a very different joint orientations as compared to all of the rock units discussed herein. The joint density (how far apart the joints are relative to one another), was much higher than the other rock layers (several per meter), and the angle of the two dominant joint sets were almost complete 90 degrees from each other (Fig. 4). The joints were well formed, and could be seen clearly, as opposed to the rough or confusing Pulaski formation. The orientation of the normally ENE joints in these rock layers were oriented NE, which is a substantial difference of approximately 15 to 20 degrees to the other rock layers.

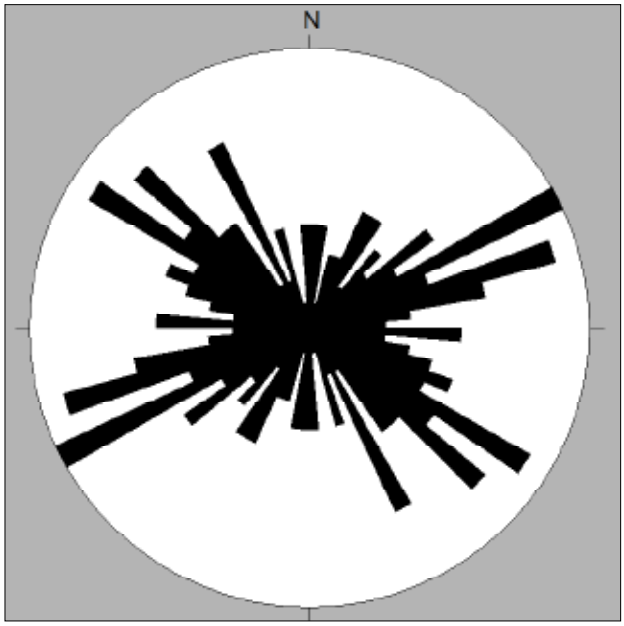

Fig. 3. Rose diagrams showing the strike of joints in the Henderson, NY region. The number of data represented is 170 measurements.

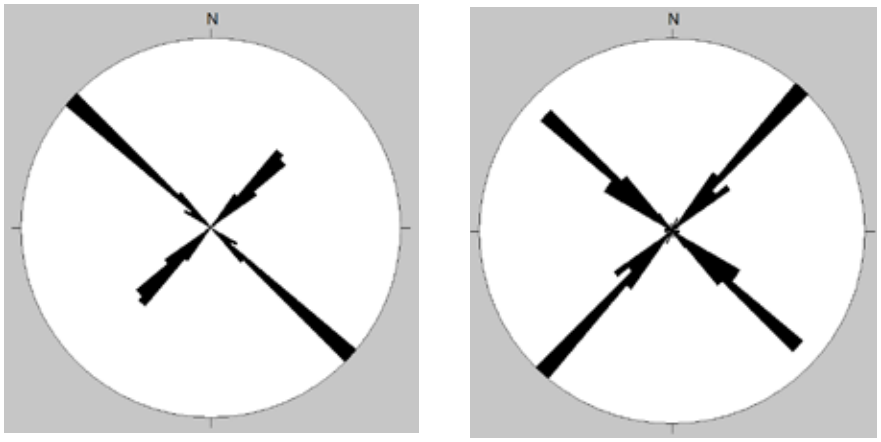

Fig. 4. Rose diagrams for the strike of joins in the Whetstone Gulf formation. There is little to no discrepancy in the data as seen in the other rock formations, and as noted in the text the angle between the joint sets are approximately 90 degrees. As compared to the other rock formation orientations, the NE joints are approximately 15 to 20 degrees more north. The number of measurements for each rose diagram is 128 (left) and 119 (right).

II.c. Pulaski formation

The Salmon River Gorge lies east of Oswego County and was down-cut along the contact between the Pulaski Formation and the Oswego Formation (Fig. 5). The Pulaski Formation underlies the Oswego Sandstone, and consists of shale, silt stone, and sandstone. The upper portion of the gorge consists of the Oswego Sandstone, the bottom section resides in the Pulaski Formation, and the transition is marked by a large waterfall. The gorge was mapped by traversing, and mapping out the joints in the river bed. There were two dominant joint sets that were oriented NW and ENE, and the

ENE joints had a sinistral shear sense. There were variations in the joint directions in the Oswego formation and the Pulaski formation where the Oswego Formation had clean cut joints similar to the Oswego Lake shore, but the Pulaski Formation had joints that were different by approximately ninety degrees. The Pulaski Formation joints were oriented NE and SE, in the shale layers, but the joints were NW and ENE in the siltstone and sandstone layers. The two joint sets formed an orthogonal pattern, that was approximately 30 and 60 degrees, but the NE and SE joints had angles of 20 degrees, which gave the rocks a jagged appearance.

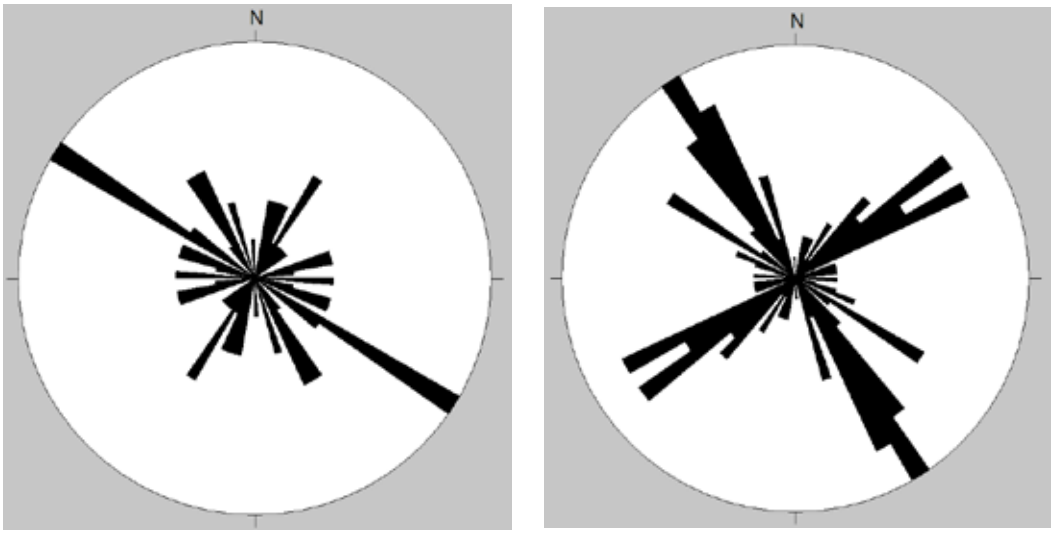

Fig. 5. Rose diagrams for the Pulaski Formation in the Salmon River gorge. The number of data points for each diagram is 62 (left, below falls) and 105 (right, down river from falls).

II.d. Oswego formation

The joints were mapped out along the Oswego lakeshore by using the following two techniques: field work and mapping, and high-resolution satellite imagery (Valentino et al., 2008). The field work aspect was done along the Lake Ontario shoreline by SUNY Oswego, and high resolution satellite images were used to cover the rest of the Lake shoreline. The joint data at the shoreline showed that there were two joint sets that were oriented NW and ENE. The joint sets had an orthogonal pattern, and the NW joints were older than the ENE joints. The ENE joints had a sinistral shear sense which cross cut the NW joints, and formed structural indicators such as en-echelon zones, faults, and slickensides. The joints represented in Fig. 6 are from the upper reaches of the Salmon River gorge in the area below the Salmon River reservoir. Abundant joints occur in medium to thick beds of sandstone and there is remarkable regularity in orientation. The dominant joint set strikes ENE and is subvertical, while the less dominant set strikes NW.

III. Results

Strata of the Tug Hill plateau record the transition from marine to terrestrial deposition associated with the onset of the Taconic orogeny from the middle to late Ordovician. The Tug Hill sequence includes the Trenton Group limestone, overlain by shale and siltstone of the Whetstone Gulf formation (Fig. 7). Increasing sandstone content defines the transition upward into the Pulaski formation,

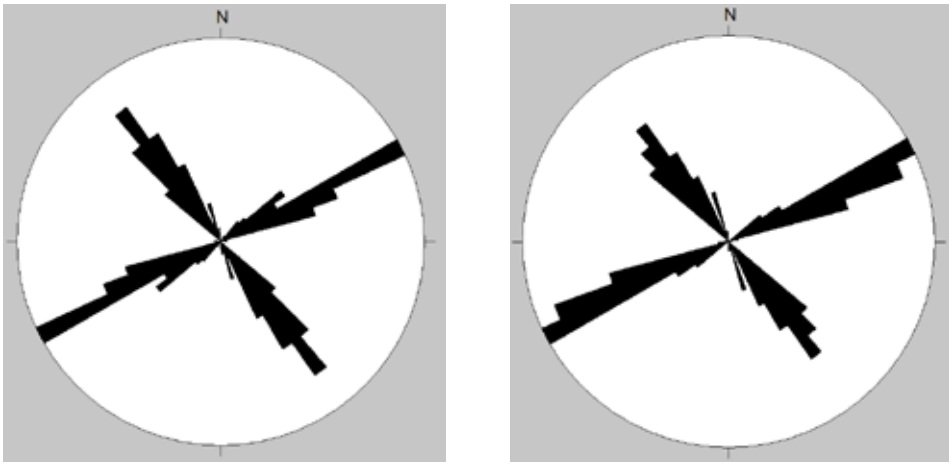

Fig. 6. Rose diagrams for the Oswego Formation in the upper Salmon River gorge below the Salmon River reservoir. The number of data points for each diagram is 124 (left) and 201(right).

and is overlain by the medium to thick bedded sandstone of the Oswego formation. There are two prominent joint sets in all of the rock formations of the Tug Hill plateau, and both sets are subvertical. The joint sets can also be characterized as generally striking NW and NE, with attitude variation dependent on rock formation. The Trenton limestone is exposed along the Lake Ontario shore near Henderson Harbor. The average strike of the joints is 056 and 330, with a spacing of about 0.75 m. The Whetstone Gulf Formation occurs in extensive outcrops within Mooney, Totman and Loraine Gulfs. The average joint strikes are 045 and 310. Joints in these gulfs have an average spacing of 0.5 m, and individual joints can be traced 10's of meters. Some joints form the high-walls of the gulfs and control the drainage. Finally, the Salmon River gorge exposes the Pulaski and Oswego formations. Within the Pulaski formation, the average joint spacing is ~0.5 m, and they have average strikes of 041 and 315. The Oswego fm forms the falls on the Salmon River. The two joint sets have average orientations of 057 and 320, with a spacing of ~1 m. The Tug Hill sequence represents a thick "sandwich" of relatively weak rock (shale-siltstone) between stronger limestone (below) and sandstone (above). Both joint sets show a counter-clock-wise variation in strike of about 15 to 20 degrees passing from the Trenton limestone into the overlying shale and siltstone. Conversely, the strike of the joint sets show a clock-wise variation of about 15-20 degrees passing upward from the Pulaski Formation into the Oswego Formation. Due to the systematic variation in strike of both joint sets in the Tug Hill Plateau, it appears that rock competency may have controlled refraction of the joints on the scale of formations.

The variation in the orientation of jointing in the Pulaski Formation is similar to the larger statigraphic sequence in that joint orientations are most likely due to varying rock types that make up the formation. The upper part of the Pulaski Formation consists of mostly shale with thin beds of sandstone. Joints in this part of the formation strike more westerly, and the NW striking set dominate. The middle part of the Pulaski Formation contains thicker beds of sandstone, and the joints are nearly identical to those developed in the Oswego Formation. Competency contrast between rigid sandstone and relatively plastic shale may account for the change in attitude and is consistent with inter-formational refraction during joint development. This is also observed on the scale of individual bed transitions.

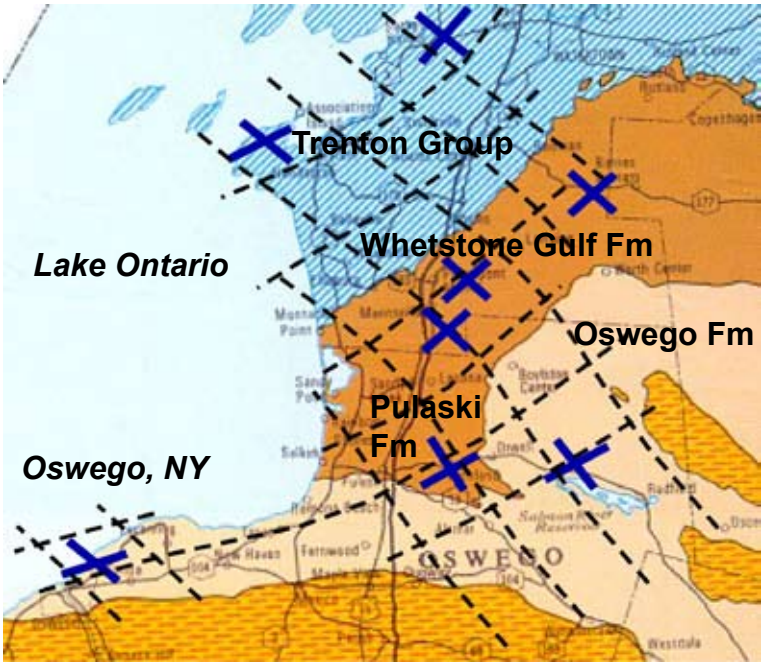

Fig. 7. General geologic map of the eastern Lake Ontario region including the western Tug Hill Plateau (NYS Museum). Blue lines represent the joint orientations. Black dashed lines are form lines showing the overall change in orientation as the joints pass through the Whetstone Gulf Formation.

IV. Summary

There are several generations of jointing that formed in the Appalachian Basin during the Alleghanian orogeny, which vary in origin. The first and oldest joints oriented NS formed around 350 mya and developed as the result of a fore bulge associated with the beginning of the Alleghanian orogeny. This uplift in the land caused joints to form parallel to the axis of the bulge, which was oriented NS. The second generation of joints formed around 300 – 250 my, and are oriented in several different directions. The joints formed from the head-on collision of the tectonic plates, and changed orientation as the bulk compression changed. There are two zones that show a rotation of the joint directions relative to the initial NW direction. This median zone is in western Pennsylvania, and the joints change counter clock wise to the south, and change clock wise to the north. Finally, there is a third generation of joints that are oriented ENE, and cross cut the other two joint sets. These joints formed around the same time as the NW joints, but differ in that they formed with the aid of fluid pressure, and are aligned with the bulk compression. As the tectonic plates completed their compression, the ENE joints underwent a right lateral shear sense, because they were parallel to the bulk compression direction. The joints of the western Tug Hill Plateau are generally consistent with those documents in the Appalachian basin, but, variation in orientation is probably controlled by bedrock strength and refraction that occurred during formation.

VI. Acknowledgments

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MAGNETIC GRADIENT ANOMALIES ON ONONDAGA LAKE, NEW YORK: ARE THEY GEOLOGIC OR ANTHROPOGENTIC?

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A high-resolution magnetic field strength survey was completed on Onondaga Lake, NY, to search for geologic and anthropogenic sources for anomalies. The survey was completed on the lake using a GEM-19GW Walking Overhauser Gradiometer attached to an inflatable motorboat. The gradiometer consists of two magnetometer sensors with vertical separation, GPS tracking and automated data collection capability. Onondaga Lake was surveyed using a zig-zag track across the width and length, and at an average speed o f 21 km/hr that resulted in readings with 1.2 m spacing. Measurements were made at more than 32,400 locations in less than 3 hours, with the bottom sensor providing total magnetic field strength (nT) and both sensors providing the vertical field strength gradient (nT/m). The total field strength data was examined for diurnal variation. Subtraction of the earth's average magnetic field strength for the center of Onondaga Lake (54,092nT), produced the magnetic anomaly data set. Subtraction of the magnetic gradient from the anomaly data set, produced a second set of magnetic anomaly data 1 meter higher in elevation. Using the computer program Surfer 8.0, contour maps were made for both anomaly data sets and for the vertical gradient. Both magnetic anomaly maps show a general pattern of higher and lower field strength for the NW and SE ends of the lake respectively, but there are also small-scale variations in the overall gradient (<300 m wide). The lake-scale horizontal gradient is most likely due to the geology beneath Onondaga Lake, but the smaller anomalies (100-300 m wide) probably reflect man-made objects on the lake bed. First and second directional derivatives were computed for all three data sets to enhance these small anomalies. The 1st derivative produced the gradient for the horizontal anomalies over the survey distance (nT/m), and resulted in more pronounced anomalies (~100 m wide). The 2nd derivative resulted in the anomaly field strength per area (nT/m^2), and further pin-pointed the locations for the anomaly sources (25-50 m wide). Overall, these magnetic anomalies deviate from the regional magnetic gradient (500 to >2000 nT), and are most likely due to man-made objects. The objects have a strong influence on the local total magnetic field, and may be sunken boats or pieces of boats, anchors, or other discarded materials containing metal. In this study, the application of high-resolution magnetometry has demonstrated its usefulness in discriminating between geologic and anthropogenic magnetic sources on Onondaga Lake, NY.

I. Introduction and Hypothesis

Onondaga Lake is located within an industrialized region of central New York, north of Syracuse (Fig. 1). The lake region was used in salt mining and transport of goods though the 18th and 19th centuries, and it is currently used for recreation. However, Onondaga Lake was a dumping ground for industrial waste in the 19th and 20th centuries, and is well known for being one of the

most polluted water bodies in the U.S. A comprehensive clean-up and reclamation program is underway with the goal to restore the lake to a pre-industrial environmental condition (Onondaga Lake Partnership). Considering the long history of human activity on Onondaga Lake, it is conceivable that a considerable amount of debris has been accidentally dropped or dumped into the lake. In an extreme example, as reported by The Post-Standard, Syracuse, NY, a military plane encountered severe snow and crashed into the lake on November 26, 1955, and the wreckage was not recovered.

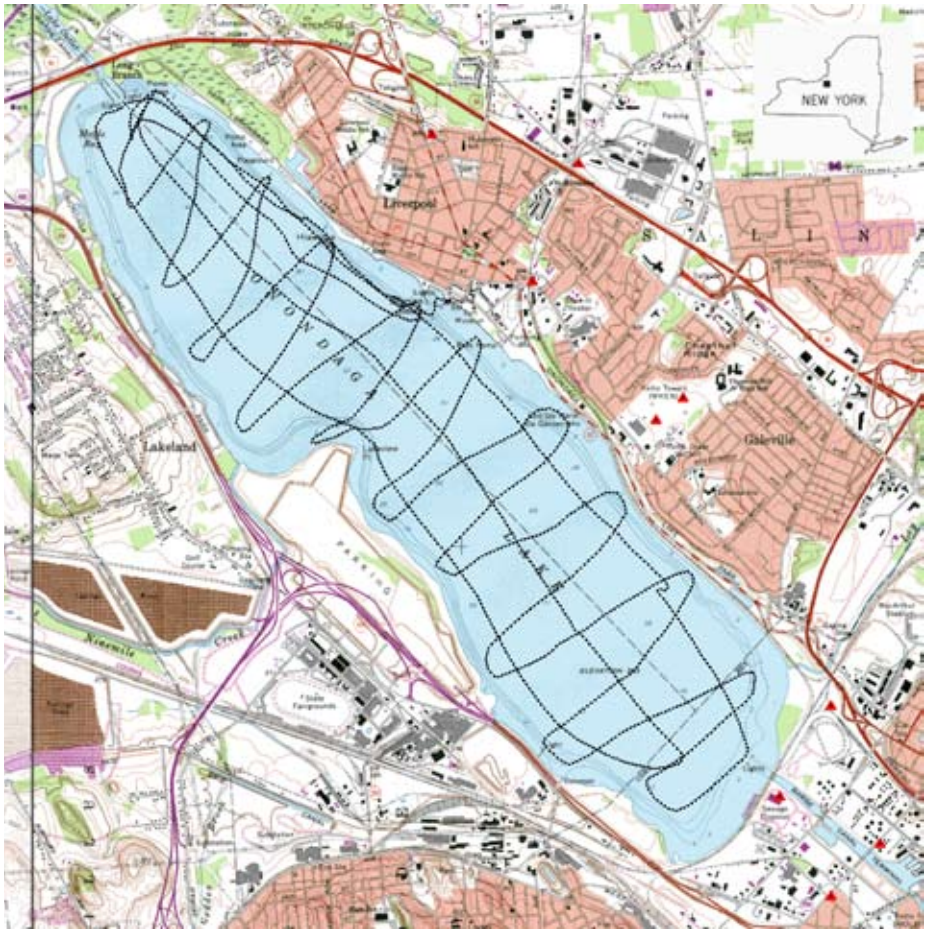

Fig. 1. Topographic map (USGS Series) of the Onondaga Lake region, located northwest of Syracuse, New York. The black dashed path in the lake shows the magnetic survey track that was completed on October 17, 2008.

In regard to the geologic history, Onondaga Lake is located within the Onondaga Trough, which is an ancient river valley that formed at the end of the last ice age in central New York. With the use of well data, Kappel and Yager (2008) showed that Onondaga Lake is underlain by bedrock of the Salina Formation (shale and salt beds), gravel bodies, and lake deposits of silt and clay (Fig. 2). Heenan et al. (2009) showed that the regional magnetic gradient across Onondaga Lake is mostly due to the variable proximity of the Salina Formation to the surface (Fig. 3), and an anomaly in the overall magnetic gradient is probably due to the Solvay waste bed materials, that are located on the west shore of the lake.

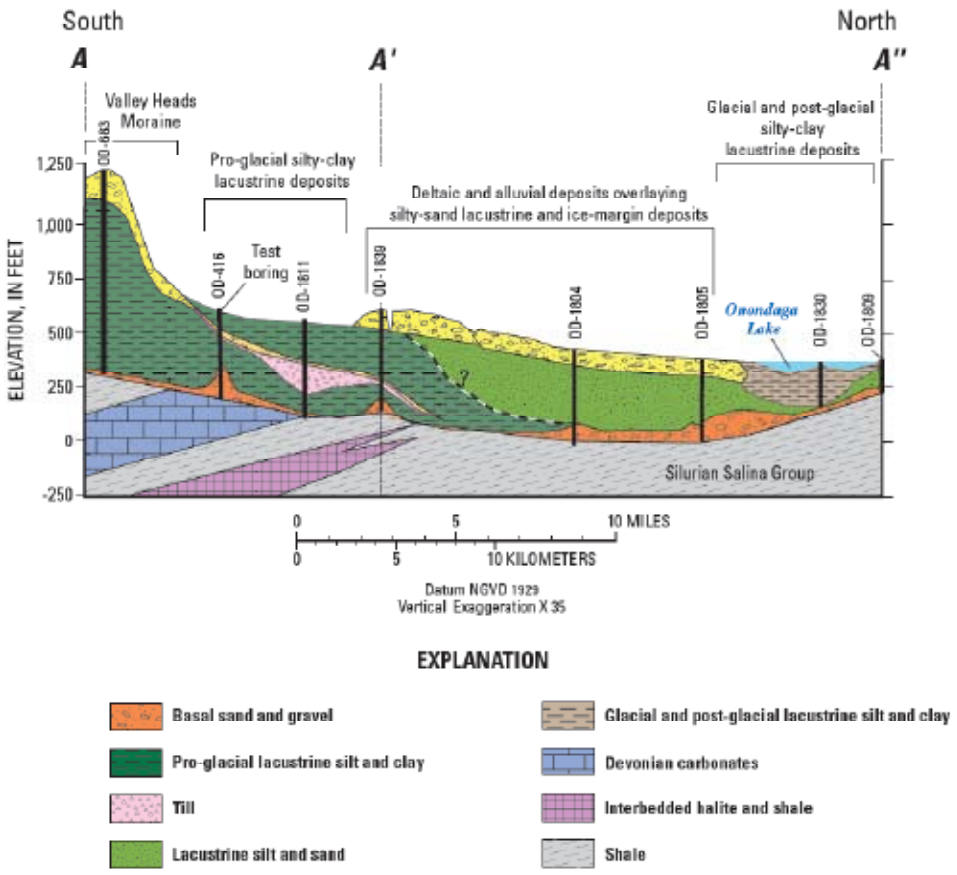

Fig. 2. Geologic cross section of the Onondaga Trough based on well information (Kappel and Yager, 2008). Note that Onondaga Lake resides over the Silurian Salina Group, gravel, sand and silt, and lake deposits of silt and clay.

Magnetic gradiometry is a geophysical technique that is widely applied in studies of regional geology as well as small-scale archaeology and environmental investigations (Burger et al., 2006; Jeng et al., 2003; Arisov, 2007). Given a sufficiently high-resolution regional magnetic gradient survey on Onondaga Lake, NY, is it possible to distinguish between the geologic and anthropogenic magnetic anomaly sources? During this study, it was hypothesized that magnetic anomalies resulting from man-made objects can be identified and isolated from magnetic anomalies associated with regional geology using both horizontal and vertical high-resolution magnetic gradient data. The open water, relatively simple shape of the lake, general geology and potential for metallic debris on the lake bed, make the conditions of Onondaga Lake ideal for this investigation. As concluded by Heenan et al. (2009), the subsurface geology of Onondaga Lake probably controls the regional magnetic field gradient, therefore, a high-resolution horizontal and vertical magnetic gradient study, and subsequent anomaly mapping, should be able to narrow the location of metallic objects dropped into the lake during human activities. If so, then the results of this investigation may possibly be used in remediation projects on the lake, and applied to other water bodies affected by human activity.

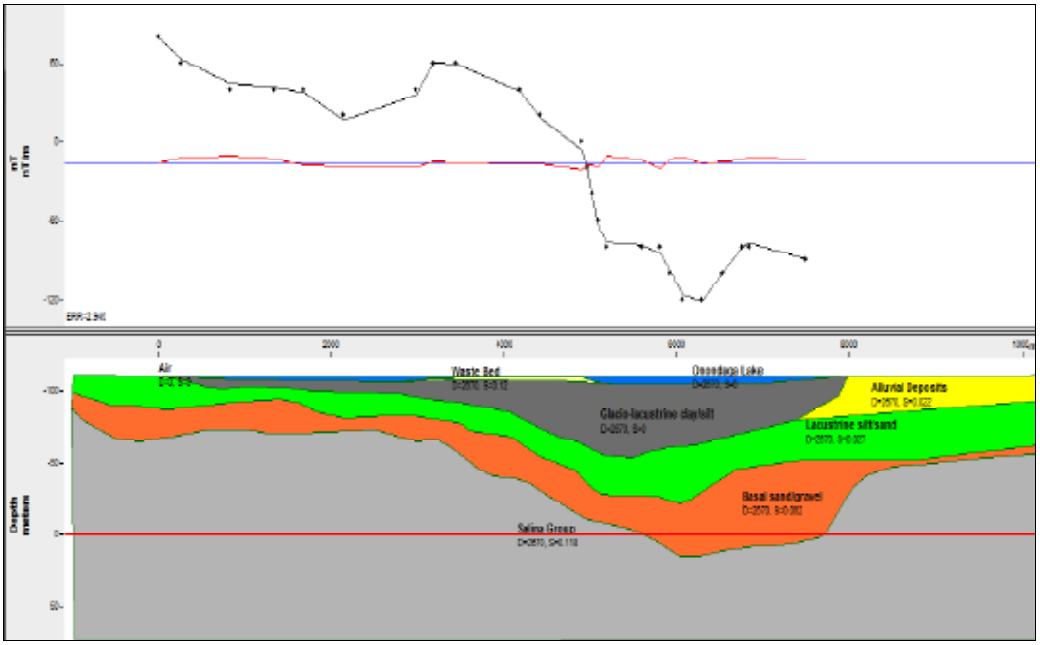

Fig. 3. Geologic model based on a magnetic profile along the length of Onondaga Lake (Heenan et al. 2009). Note that the overall magnetic gradient is high on the north-east end of the lake and low on the south-east. The small anomaly in the middle of the line is attributed to the calcium carbonate and salts of the Solvay Waste Beds.

II. Experimental Design and Methods

A magnetic gradient survey was completed on Onondaga Lake on October 17, 2008 at a time when boat traffic was minimal (Fig. 1). The survey was completed on the lake using a GEM-19GW Walking Overhauser Gradiometer attached to an inflatable motorboat (Fig. 4). The gradiometer consists of two magnetometer sensors with a vertical separation of 0.5 meters, global position tracking system (GPS) and automated data collection. The inflatable motorboat is a 14' Sea-Eagle with an 18 hp Tohatsu outboard motor and owned by the Earth Sciences Department at SUNY Oswego. The GEM-19GW Walking Overhauser Gradiometer is owned by the Geology Department at St. Lawrence University. Previous studies that used this equipment demonstrated that the boat and outboard motor have no effect on the magnetic data (Chiarenzelli et al., 2008; Heenan et al., 2009; Hewitt et al., 2009). The gradiometer was set to automatically track and collect magnetic data at a rate of 5 per second. Onondaga Lake was surveyed using a zigzag track (Fig. 1) across the width and length of the lake at a speed of 19 - 21 km/hr. The travel speed and automatic data collection resulted in a data spacing of 1.0 to 1.2 meters along the track. Three field crew members were required to complete the survey. Two people were required to operate and navigate (author of this paper) the boat, while one person managed the operation of the instrument. The survey was launched at the marina located near the Salt Museum on the east shore of Onondaga Lake (Fig. 1). Over a period of about 3 hours, more than 32,400 measurements were collected. A common point near the out-flow of the lake was repeatedly visited to monitor for variation in the total magnetic field strength (diurnal variation). Data collected with the bottom sensor provided the total magnetic field strength (nT), and both sensors provided the vertical field strength gradient (nT/m).

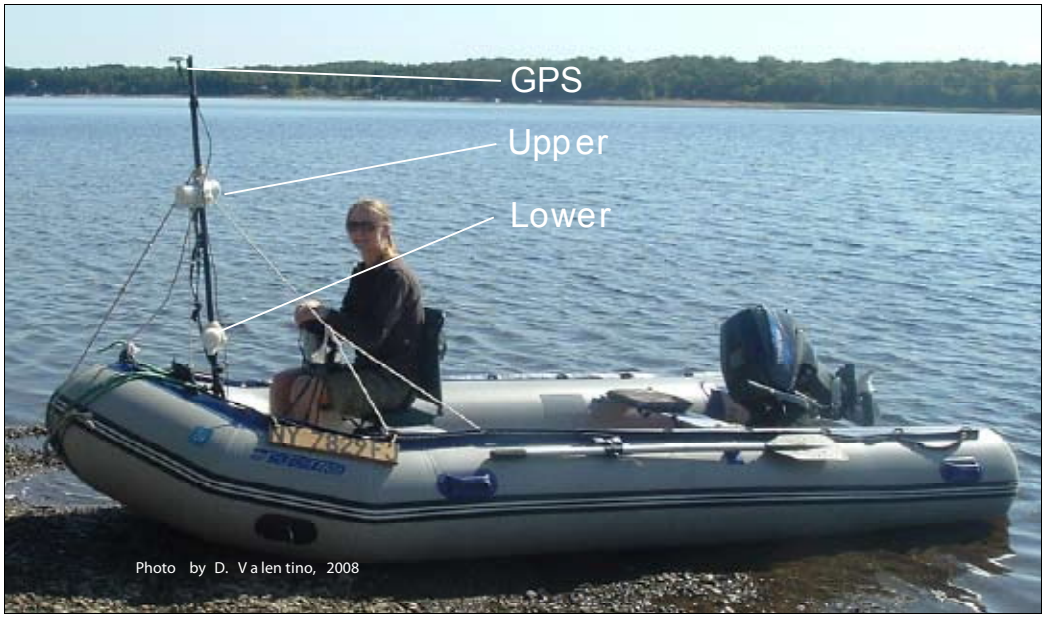

Fig. 4. This photograph shows the inflatable motorboat with the GEM-19GW Walking Gradiometer attached to the bow. The survey required one person to operate the boat, one person to navigate with the GPS, and the one person to manage the gradiometer.

III. Analysis and Results

The average total field magnetic field strength in central New York is about 54,000 nT, and solar influences can cause the total field strength to vary several hundred nT. This is referred to as the Diurnal Variation (Burger et al. 2006). Therefore, it is important to monitor the total magnetic field strength at one place over the course of the survey to track variation due to external influences. During this study, a point near the out-flow of Onondaga Lake was monitored 5 different time including the start and end of the survey. Examination of the data showed that the magnetic field strength varied about -3 nT. Considering that magnetic anomalies are 100's to 1000's of nT, diurnal correction was not necessary. The average of the earth's magnetic field strength for the center of Onondaga Lake is 54,092 nT (National Geophysical Data Center). This average was subtracted from the magnetic data to arrive at anomalies caused by geologic or anthropogenic features. The vertical magnetic gradient data (ΔnT; difference in sensors), was subtracted from the magnetic anomaly data set to compute a second set of magnetic anomalies that are located about one meter higher in elevation.

Using the computer program Surfer 8.0, a series of grids and contour maps were made for both anomaly data sets and for the vertical magnetic gradient (Fig. 5A-C). Both magnetic anomaly maps show a general pattern of higher and lower field strength for the northwest and southeast ends of the lake respectively, but there are also small-scale variations in the overall gradient (<300 m wide). The lake-scale horizontal gradient is most likely due to the geology beneath Onondaga Lake, as reported by Heenan et al. (2009), but the smaller anomalies (100-300 m wide) are probably associated with metallic objects on the lake bed or in the lake sediments.

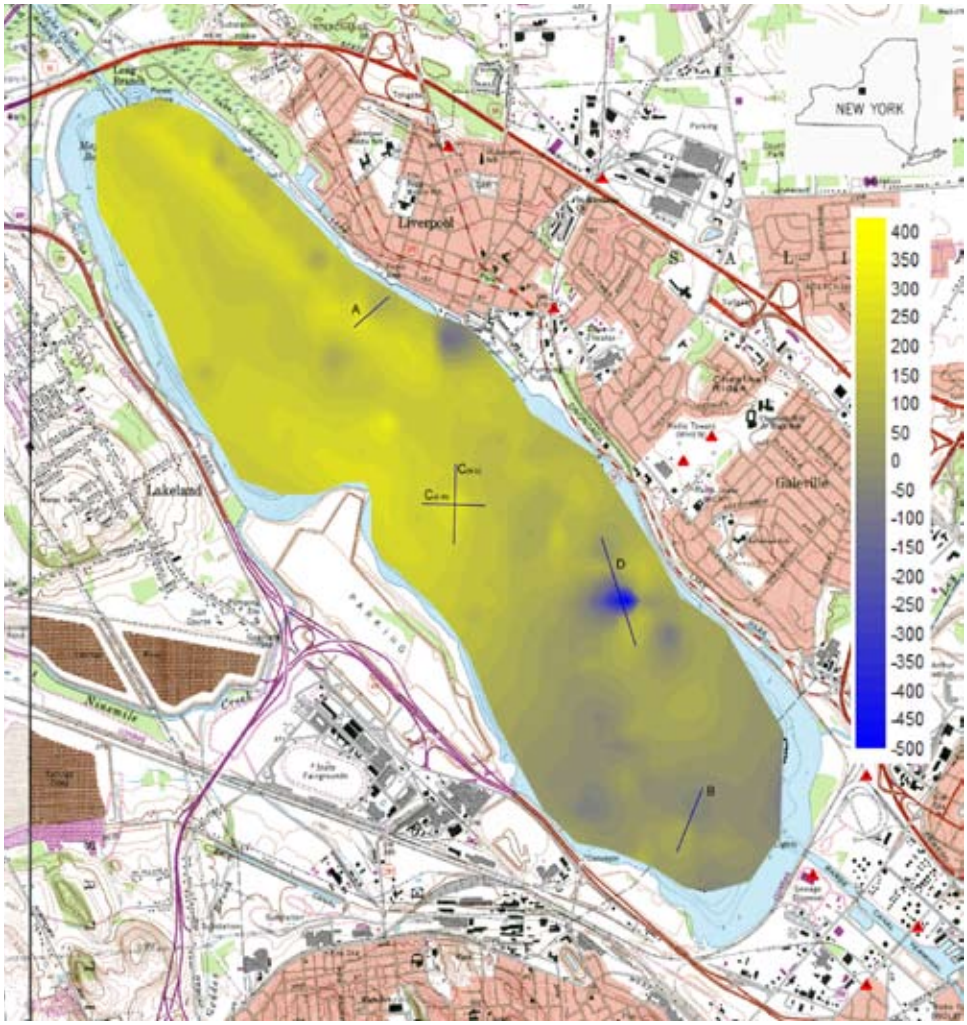

Fig. 5A. Magnetic gradient anomaly map for Onondaga Lake, New York. Magnetic anomalies are reported in nT.

In some environmental and archeology studies directional derivative analysis is performed on magnetic data to enhance the location of anomalies (Jeng et al. 2003; Missiaen and Fuller, 2008; Salem et al., 2002). With this method, linear profiles of specific magnetic anomalies are examined in several directions to identify the steepest gradient. The data is matched with a best-fit equation, and then 1st and 2nd derivatives are produced and plotted. The 1st derivative produces the gradient for the horizontal anomalies over the survey distance (nT/m), and makes the anomalies more pronounced in map view. The 2nd derivative resulted in the anomaly field strength per area (nT/m^2), and further narrows down the possible locations for the anomaly source. As an initial test with the Onondaga Lake magnetic data, five discrete magnetic anomalies were examined using this data processing method, but only one is presented here (Fig. 5A). A north-east trending profile (Fig. 6) was examined for a pair of positive and negative magnetic anomalies located offshore of Liverpool, NY (point A in Fig. 5A). Paired magnetic anomalies are often associated with metallic objects with magnetic dipoles (Lille, 1999; Burger et al., 2006). This trend was chosen after several directions were examined to arrive at the steepest gradient between the positive and negative anomalies.

The 1st derivative of this anomaly line produces a maximum at about 200 meters along the line, and the location is overlapped by the inflection between maximum and minimum values in the 2nd derivative. This is the most likely location of the magnetic center for the object producing this anomaly.

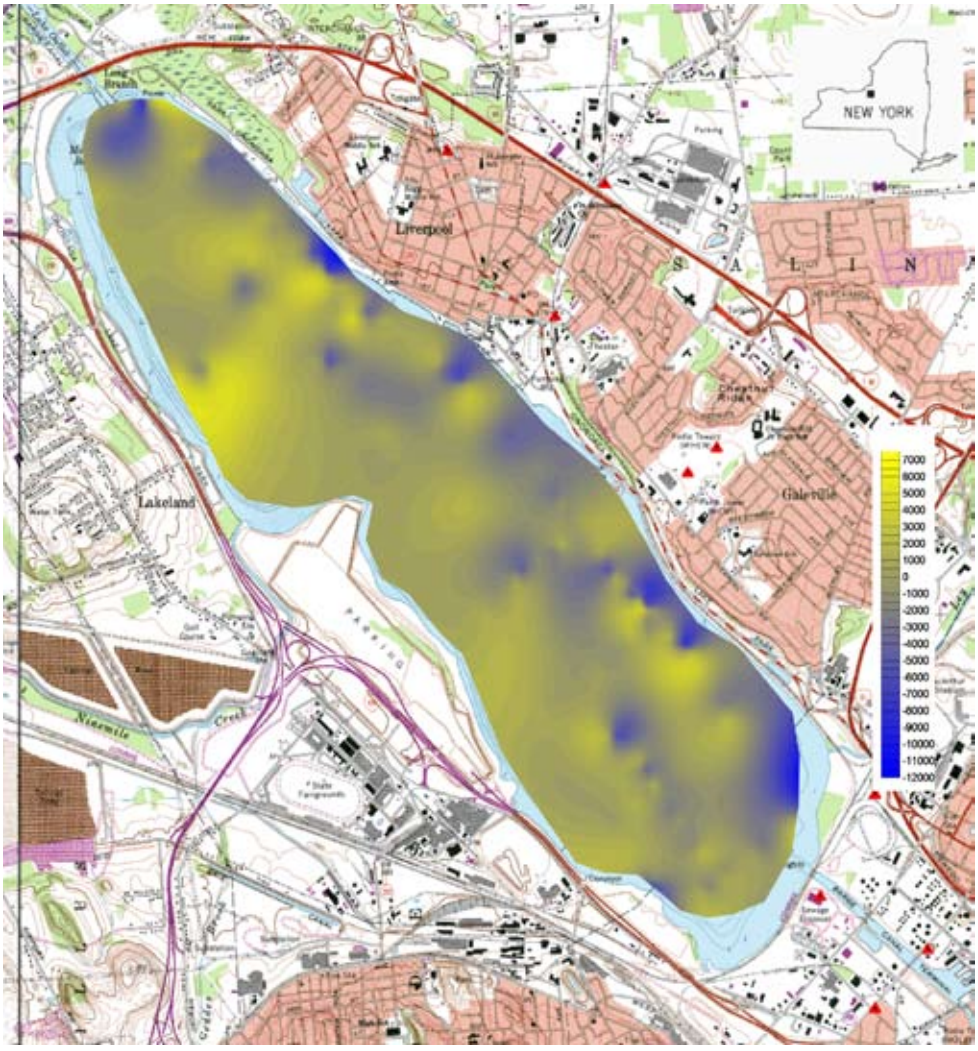

Fig. 5B. Vertical magnetic gradient anomaly map for Onondaga Lake, New York. Magnetic anomalies are reported in nT/m.

There are several dozen pronounced magnetic anomalies in Onondaga Lake; therefore, directional derivatives were computed for the entire magnetic data set, in several directions, using the calculus routine in Surfer 8.0. The resulting contour maps show anomalous regions that are relatively smaller than the original mapped magnetic anomalies. With the ability to rapidly analyze the entire data, and plot new maps, the steepest gradient directions for many anomalies were examined simultaneously (Fig. 7).

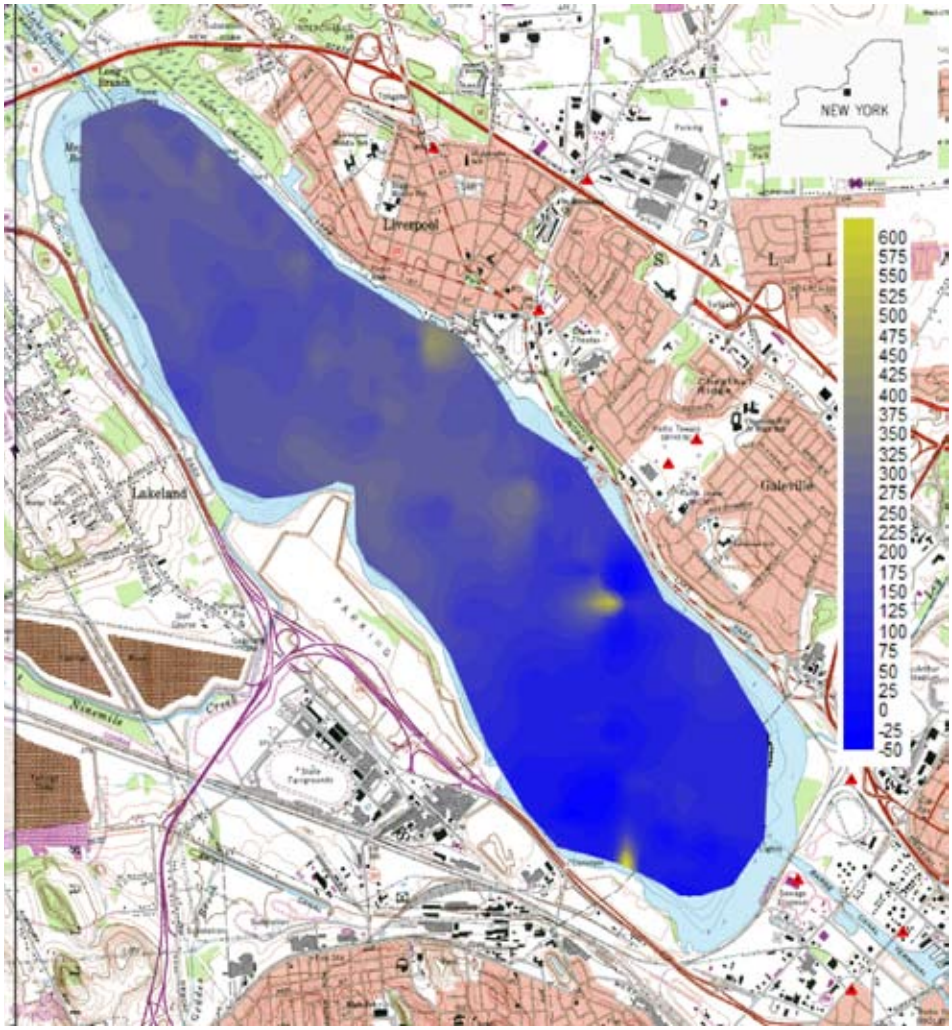

Fig. 5C. Magnetic gradient anomaly map computed using the vertical magnetic gradient data for Onondaga Lake, New York. Magnetic anomalies are reported in nT.

IV. Conclusions

Since Heenan et al. (2009) demonstrated that the regional magnetic gradient across Onondaga Lake can be explained with the subsurface geology, it is concluded that magnetic anomalies that are on the scale of several hundred meters are most likely associated with human activity. The original magnetic anomaly maps, and the derivative maps were then used to identify the possible locations of metallic objects in Onondaga Lake (Fig. 8). The large circles on Fig. 8 are anomalies that occur in the total magnetic field strength. The medium circles are also associated with the total field strength (Fig. 6A), but are computed using the vertical gradient data (Fig. 6B). Anomalies associated with the first and second directional derivative maps (Fig. 8) are represented by the small circles, and it is important to note that the directional derivative analysis narrows the location for many of the anomalies. Although it is well beyond the scope of this project to test the results by exploring for

objects on the lake bed, it will be interesting to see if the lake clean-up process encounters any significant metal objects at the predicted locations.

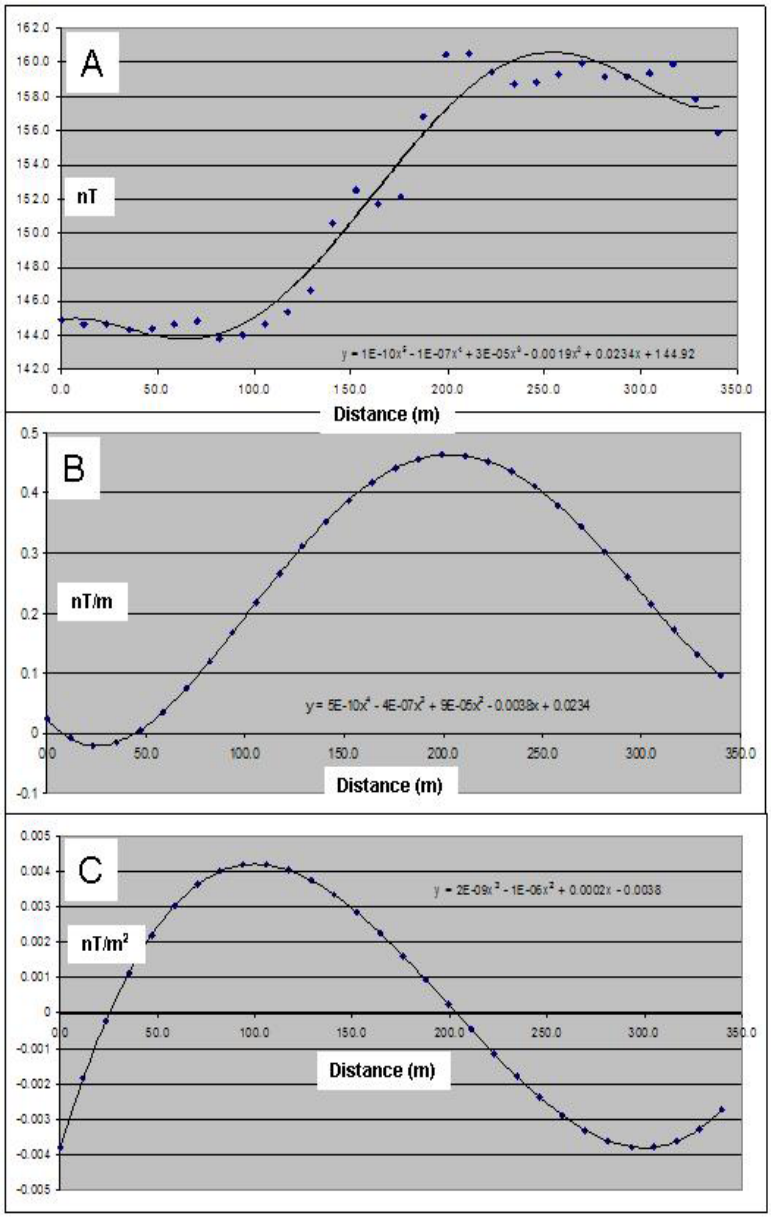

Fig. 6. A) Magnetic anomaly profile across anomaly A (Fig. 5A); B) 1st derivative plot for the magnetic anomaly profile; C) 2nd derivative plot for the magnetic anomaly profile.

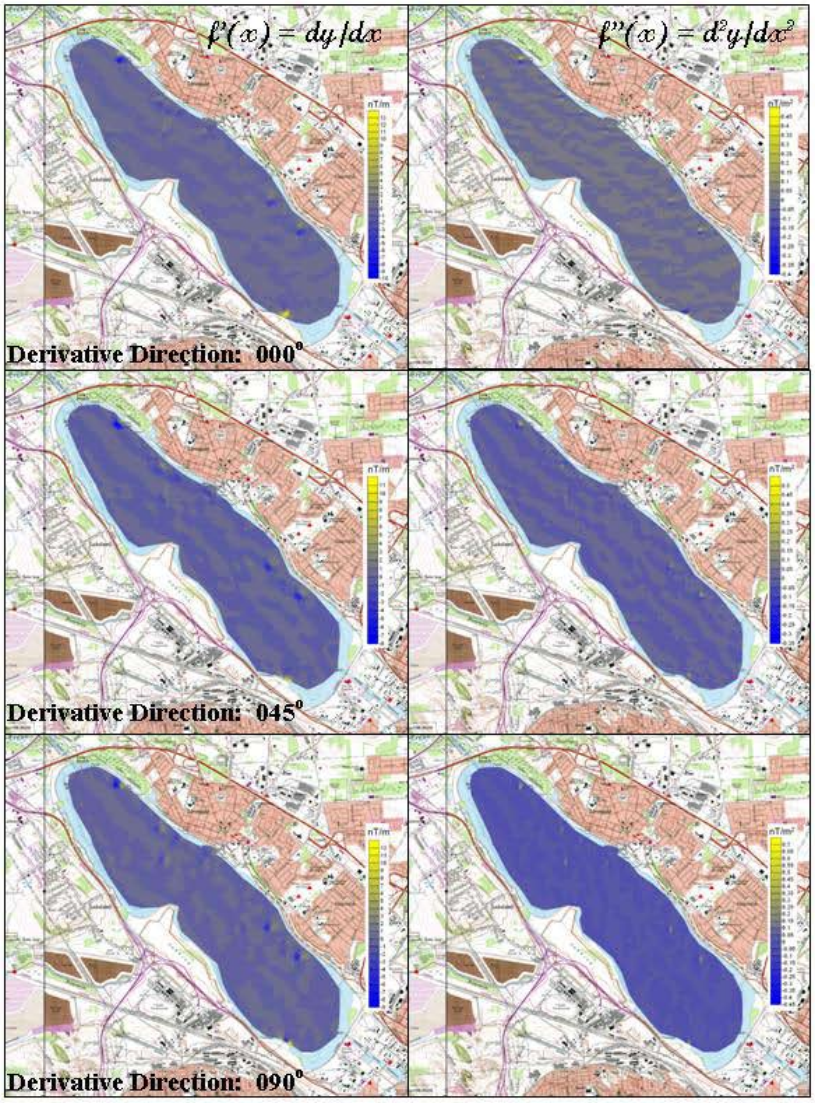

Fig. 7. Directional derivative maps produced with the magnetic anomaly data for Onondaga Lake, NY. The left column is the 1st derivative and the right column is the 2nd derivative.

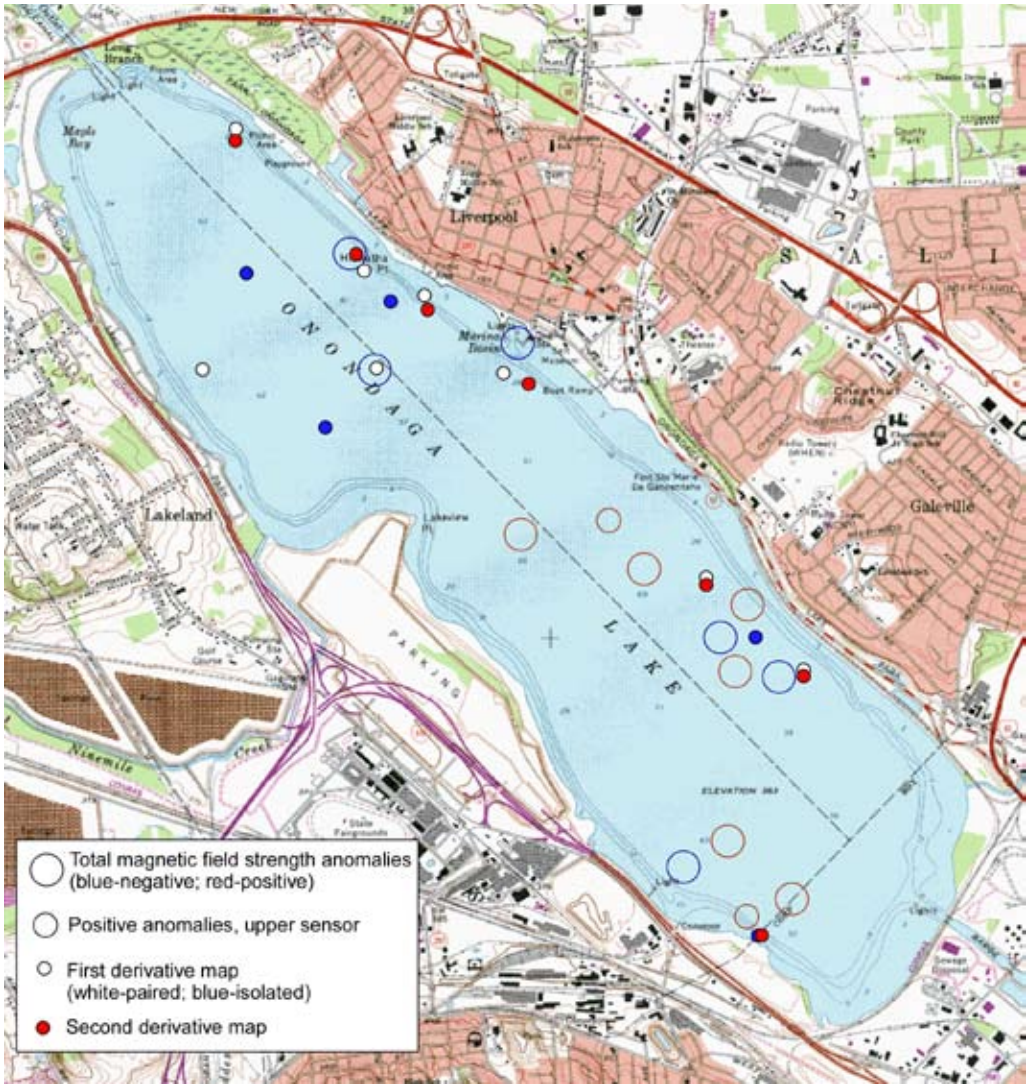

Fig. 8. Map of Onondaga Lake with the locations of various magnetic and derivative anomalies. These locations are most likely the locations of metallic objects in Onondaga Lake.

V. Acknowledgements

I was fortunate to be involved in a collaborative research project and I thank Dr. Jeffrey R. Chiarenzelli (St. Lawrence University) and Dr. David W. Valentino (SUNY Oswego) for serving as research mentors. I also thank Jeffrey Heenan of SUNY Oswego for serving as one of the three-member field crew during the survey of Onondaga Lake, inviting me to participate in this exciting project, and for the great scientific interactions that followed. Financial support for this project was provided by the author's parents.

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THE FORGOTTEN SOUL: THE ART AND WORLD OF CAMILLE CLAUDEL

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The nineteenth-century French sculptress Camille Claudel had a brief career and, as a consequence, is often forgotten in the art world. However, her innovative work serves as a reminder to her artistic achievements and is a testimony to her contributions to the development of modern sculpture. Claudel's unique style of portraying the human figure through a combination of anatomical accuracy and rough, unpolished surface texture made her work appear hauntingly real and natural. Claudel's unique use of drapery to enclose her figures was another inventive quality seen in her sculptures, which coined her work "interior" art. Claudel's final contribution involved her ability to capture a sense of vulnerability, sensuality, and fragility in her figures. This paper will examine two sculptures, *The Little Chatelaine* (1893) and *Clotho* (1893). Both works demonstrate the innovative aspects of Claudel's work while also giving insight into the life of this mysterious and misunderstood artist.

1. Introduction

Although male artists have dominated the art world throughout history some female artists have also been acknowledged for their contributions. Camille Claudel established herself as an accomplished sculptress in the nineteenth century. Claudel used quick, choppy hand strokes to capture the gestures and expressions of her figures at specific moments in time.

2. Early Years

Claudel's passion for art began in her childhood. She was born in France in 1864.[1] Her father supported her interest in art whereas her mother never understood her daughter.[2] In nineteenth-century French society, women were expected to take on the role of wife and mother.[3] Claudel, on the other hand, sought a life beyond the expectations of her family and society. She wanted to become an artist, and began working with clay at a young age. She was drawn to the rocky formations that surrounded her home. Nature and sculpture consumed her.[4]

By the age of fifteen, Claudel produced several sculptures that gained the attention from the talented sculptor, Alfred Boucher.[5] Boucher suggested for Claudel to continue her studies in Paris. In 1881, she moved to Paris and attended the Academie Colarossi, a university that admitted female students. She took courses in drawing and anatomy. On the side, she sculpted mainly religious and

1 Reine-Marie Paris: *The Life of Camille Claudel, Rodin's Muse and Mistress* (New York: Arcade Publishing, 1984), 2.
2 Ibid., 3.
3 Ibid., 20.
4 Ibid., 4.
5 Ibid., 5.

mythological works. Boucher often mentored Claudel and exposed her to the Florentine School, which was famous in the Renaissance period. The artists in the Florentine school used scientific and naturalistic approaches in their work in order to depict the human figure accurately. They adopted methods similar to the Pre-Raphaelites, which focused on well-made and balanced work.[6] Claudel's delicate handling and molding of her sculptures reflected the realistic approach seen in the Florentine School, leading some critics to believe that Claudel was the last of the Florentines. The preservation of form and well-defined shapes were important to her.[7] In this sense, Claudel's work was traditional. Her style, however, changed dramatically between the years of 1883 and 1898.

3. Years with Auguste Rodin: 1883-1898

During this time, Claudel worked with Auguste Rodin, the master sculptor. She first served as his pupil and model, but then became his mistress. Rodin wanted to break away from the industrial art world. Rodin focused on nature as his source of inspiration, and believed that the ancients obtained their designs directly from nature.[8] Claudel shared Rodin's interest in nature. She avoided the use of mythological and allegorical stories of the past, which differed from that of the Renaissance artists who embedded religious stories in their sculptures. She instead relied on her love of the land to inspire the content in her work.[9] Her goal was to capture psychological overtones through the creation of a new genre of narrative sculpture based on everyday life.[10]

The Little Chatelaine (Fig. 1) was one of Claudel's sculptures that reflected this new genre. This plaster cast depicting the head and chest of a little girl was created in 1893.[11] The overall presence of this work appears haunting and fragile, like the child herself. The child looks beyond her years as if she has been through something awful. The impressions left from the artist's hand further suggests that the child has been abused in some way, not necessarily physically, but rather psychologically. The surface appears to be unfinished. This unfinished appearance creates a discoloration in the girl's flesh. The discolored sections seem like severed parts as if pieces of her life have been chipped away, which have left her to decay gradually. Her undefined and haunting eyes gaze up and produce an implied line between the viewer and the child-statue. Her mouth also drops downward in a quivering position.

Claudel integrated techniques from the Florentines and the Impressionists in this work. For example, the rough and dirty surface texture juxtaposed with the soft and tender expression of the child creates a balance that Claudel adopted from the Florentines. The unfinished quality of the work came from her exposure to several impressionist painters, namely Auguste Renoir and Claude Monet. [12] The Impressionists focused on capturing light as it fell on objects throughout the day. Much of their work reveals quick, choppy brushstrokes to achieve this task. Claudel applied a similar technique in her sculptures. She used rapid hand strokes and dug through the clay to get

6 Ibid., 166-167.
7 Ibid., 168.
8 Judith Claudel, *Rodin: The Man and His Art,* (New York: The Century Co., 1917), 125.
9 Paris, 169.
10 Ibid., 58.
11 Ibid., 177.
12 Ibid., 11.

to the essence of her subject in *The Little Chatelaine* in order to capture a specific moment in her own life.

Some sources say that *The Little Chatelaine* was inspired by Claudel's anguish. Between the years of 1888 and 1892, Rodin and Claudel took several trips to the Chateau d' Islette, a mansion in Touraine.[13] Claudel supposedly had several abortions at the mansion. The ghost-like presence of the young girl was believed to represent one of Claudel's unborn children.[14]

Despite the above theory, some critics argued that this unknown child represented Claudel and her loss of innocence that occurred when she became Rodin's mistress. At the time this sculpture was made, Claudel felt used by Rodin. She later wrote in a letter to her brother, Paul: "That pathetic specimen of a man uses me in all sorts of ways….cost me an arm and a leg and I get less than nothing."[15] Some critics believed that Claudel made some of Rodin's work during their fifteen-year affair. Her hands were said to have molded some of the figures in *The Gates of Hell*.[16] The chipped away and bruised appearance of the child in *The Little Chatelaine* would represent Rodin taking pieces of Claudel. She was always referred to as Rodin's pupil, a title she desperately tried to escape.[17]

The same year her *Little Chatelaine* was made, Claudel acquired her own studio and isolated herself from Rodin.[18] This physical separation allowed Claudel to create authentic work that could be distinguished from Rodin's.

She focused on a variety of themes during this time. One theme included the study of old age. More specifically, she studied the bone structure in the aging bodies of women. Her brother once commented on her mastery in this area. He said that her knowledge of modeling came from her devotion to months of anatomical study and dissection.[19]

In addition to her themes, Claudel developed a form of drapery that enclosed her figures. For example, she made a massive wave that clouded over her figures in *The Wave.*[20] She constructed a built-in screen that hid her figures in *The Gossipers.*[21] She also used drapery in the literal sense to clothe her figure in *Deep in Thought*.[22] Her use of drapery stood in contrast with Rodin's primary interest in nudity.[23]

Claudel's *Clotho* (Fig. 2) best demonstrates her unique use of drapery. *Clotho* was based on a Greek myth. Clotho, the youngest of the three Fates of Zeus, was known as the spinner who spun the thread of life. The length of the string determined how long a person lived.

Claudel depicted her *Clotho* as an old, ancient woman. The emaciated figure looks as though she is trapped within a web-like fabric, which wraps around her head and body. She holds the thread of life in one hand. Her stance reflects the traditional contrapasto position often used by the Florentines. Her feet are submerged in the rock below her body. Her legs also seem to want to

13 Catherine Lampert, *Rodin: Sculptures & Drawings* (London: Yale University Press, 1986), 91.
14 Paris, 13-14.
15 Ibid., 130.
16 Ibid., 17.
17 Ibid., 55.
18 Ibid., 20.
19 Bernard Champigneulle, *Rodin* (London: Thames and Hudson, 1967), 114.
20 Paris, 93.
21 Ibid., 181-184.
22 Ibid., 215-216.
23 Ibid., 174.

move. Yet, the weight of the web-like clay forces her to remain immobile. At the same time, the web keeps her erect. The web of clay further casts deep shadows in the interior part of the web and on the outer left side of the body while light moves in and out of the crevices of the thread. Strong highlights are seen on the exposed skin in the front and the back. The web of clay also wraps around her body in such a way that encourages the viewer to follow the web's path.

Claudel's focus on light, atmosphere, and movement in her work was discussed in an article in *The Economist*, which observed that Claudel's spaces opened up between figures, and forced the viewer to examine her work from every angle.[24] In the case of *Clotho*, the open spaces occurred between the web of clay and the old woman. Claudel also limited the space between the viewer and *Clotho.* This sculpture along with *The Gossipers* forced the viewer to move toward both statues in order to see the details. *The Gossipers*, especially, was said to fit inside the palms as if it were a secret that one wanted to conceal within the hands.[25] This type of construction differed from statues that were made in the Renaissance period, which were placed on pedestals, forcing the viewer to view them from a distance.

The web-like clay in *Clotho* served two functions. The clay acted as a form of drapery, like a headdress and was influenced by the Art Nouveau movement.[26] Claudel used the organic, plant structure as fabric to be worn. The web of clay reflected the twisting and curving forms in plant growth. The crude indentations in the web resembled bark from a tree.

The web of clay also represented the entanglement of Claudel's doomed love affair with Rodin.[27] Their relationship was on the brink of destruction. His lifelong companion, Rose Beuret, was portrayed as the old woman who stole Rodin from Claudel in her work, *Maturity*.[28] Beuret was again depicted as the old woman in *Clotho* who held Claudel's fate in her hand.

4. The Rise of Her Downfall

Claudel was said to have gone through two deaths. Her first death occurred when she and Rodin parted in 1898. She not only lost him, but also her career and passion for art.[29] She isolated herself to the point where she developed a persecution complex. She came to believe that Rodin wanted to steal her work and ideas. Her emotional distress grew into irrational behavior, which resulted in the destruction of many of her sculptures. Claudel's mind gradually deteriorated to the point where she could no longer function in society. She was eventually placed in an asylum in 1913 where she remained incarcerated until her death in 1943.[30]

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24 *The Economist: Books and Arts:* The Triumphant Tragedy; Camille Claudel (London: Jan. 7, 2006), 79.
25 Paris, 172.
26 Ibid., 173.
27 Lampert, 92.
28 Ibid.
29 Paris, 69.
30 Lampert, 93.

5. Conclusion

Despite her brief career as an artist, Claudel was considered an innovative modern sculptress. Her sculptures, such as *The Little Chatelaine* and *Clotho*, broke the nineteenth century tradition of portraying idealized subjects. They demonstrated Claudel's ability to instantly petrify a moment.[31] Her secret involved the use of quick hand strokes to extract the essence of her subjects, which resulted in an unpolished, but a natural appearance in her figures.

Fig. 1 Claudel, *The Little Chatelaine*. Plaster, 1893, 13 ½ x 11 ¼ x 9 *inches.*[32]

31 Paris, 175.

32 Ibid., 177.

Fig. 2 Claudel, *Clotho.* Plaster, 1893, 35 ½ x 13 ¾ x 13 ¾ *inches*.[33]

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33 Ibid., 126.

MAGNETIC ANOMALY MAPPING AND SUBSURFACE MODELING OF HINCKLEY RESERVOIR, HINCKLEY, NEW YORK

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A dam on West Canada creek at Hinckley, New York forms a ~10 sq km lake, Hinckley Lake (reservoir). The lake overlies the western boundary of the Proterozoic Adirondack massif with Ordovician carbonate rocks of the Trenton Formation, and the western end of the lake resides over Quaternary sand deposits. The Proterozoic rocks mostly consist of highly sheared granitic gneiss of the Piseco shear zone, however, less voluminous more mafic layers have been mapped within the shear zone immediately to the east of the lake. Finally, Hinckley Reservoir and the West Canada Creek form an east-west lineament that was previously interpreted as the eastern extension of the Prospect Fault (a fault that traces westward from Piseco Lake, through Hinckley, Trenton and the village of Holland Patent).

I. Introduction

To better understand the complex geology beneath Hinckley Lake, a high-resolution magnetic survey was conducted to produce a magnetic anomaly map and model the subsurface. The field survey utilized a GPS linked, magnetic gradiometer, and an inflatable motor boat. The survey involved a zig-zag track followed by length-wise survey lines for a total distance of 67 km. More than 36000 data were collected at a rate of 5 readings per second and 1.2 m average spacing. The survey time was ~3.5 hours, and repeat readings were collected several times at the same location to correct for diurnal variation. The magnetic data was cleaned to remove incomplete readings due to instrument error and contour anomaly maps were generated. A magnetic anomaly of about 300 nT defines a pronounced magnetic lineament with a trend of 085 degrees. This magnetic lineament is parallel to the long axis of the lake and extends into West Canada creek. The north and south sides of the magnetic lineament show high and low anomalies respectively. This lineament most likely represents the trace of the Prospect Fault, separating Proterozoic rocks with varied ferromagnesian mineral content. There is a low regional magnetic gradient (~100 nT) that crosses the entire lake and most likely represents the location of Paleozoic cover rocks that progressively thicken westward.

II. Background

The Adirondack Mountains of New York State (Fig. 1) are contained with a crust-scale dome of Proterozoic age rocks (the Adirondack dome). The Adirondack dome is surrounded by Paleozoic sedimentary rocks, and crosscut by presumed Tertiary brittle faults (Isachen, 1975; Isachen, 1981) and formed by differential uplift (Roden-Tice et al., 2000). Over the past several years, there has been considerable research focus on brittle faults in the Adirondacks, and throughout New York State, to understand how the Proterzoic structure controls fault distribution, and how fault distribution

controls patterns of Paleozoic sedimentation (Jacobi, 2002). However, due to the glacial cover, and mature forests, and compounded by intense weathering, brittle faults are not well exposed in the

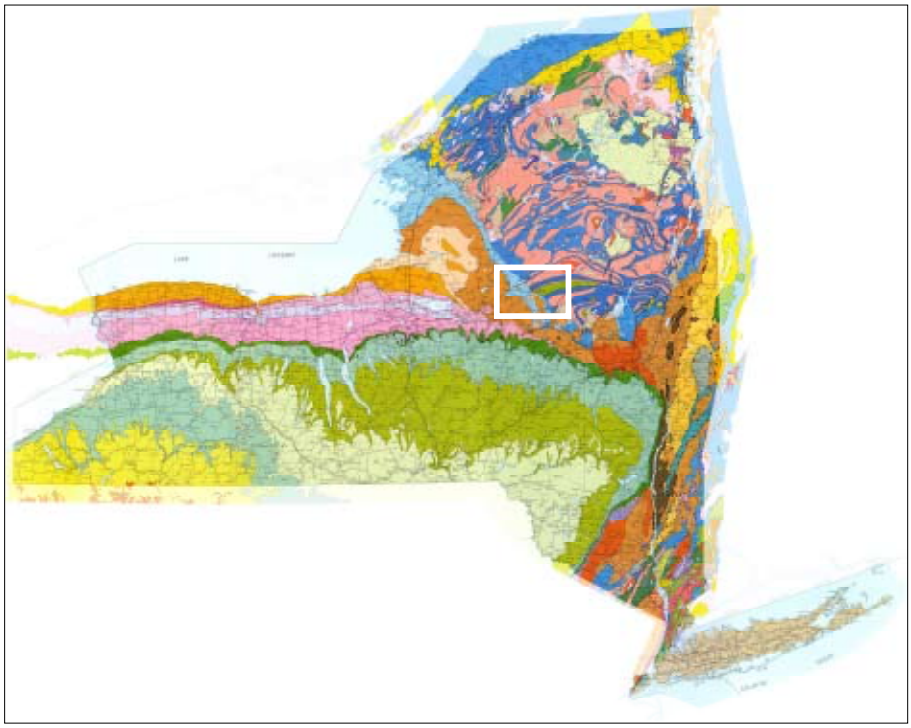

Fig. 1. General bedrock geologic map of New York State (New York State Museum). The white box shows the location for Fig. 2.

Adirondack Mountains. These faults often occur within pronounced topographic lineaments, such as Long Lake, Indian Lake and the narrow valleys that extend between the water bodies. A compilation of lineaments and inferred fault (Isachsen, 1975; Isachsen, 1981) demonstrated that there is a prominent northeast-southwest strike, with only a few faults having a counter-regional attitude. As well, it was demonstrated that most fault do not extend beyond the limit of the Adirondack dome, and it was concluded that the faults are directly linked to the event that caused crustal arching. Chiarenzelli et al. (2008) reported on a recent field investigation where several Adirondack lakes were magnetically surveyed to generate magnetic maps and subsequent structural models to better understand the history of movement of faults under the lakes. In that study, it was reported that Indian Lake resides over an oblique sinistral fault, while Piseco Lake conceals a half-graben that most likely preserves a wedge-shaped body of Paleozoic carbonate rocks within the Proterozoic metamorphic rocks that are typical of the Adirondacks.

Hinckley Lake was formed in 1914, by the damming of West Canada Creek; located in the western most Adirondack Mountains (Fig. 2). Like most major water bodies in the Adirondacks, the Hinckley Reservoir and West Canada Creek drainage system are part of a pronounced topographic lineament that forms an arc-shaped, generally east-west, map trace. On the New York State geologic map, this lineament is coincident with the Prospect Fault (named for Prospect, New York) and projects into the interior of the southwestern Adirondacks (Fig. 2). As mentioned before, most brittle faults in the Adirondacks strike northeast-southwest, but the Prospect fault appears to follow

the Proterozoic rock structure of the Piseco Lake ductile shear zone (Chairenzelli and Valentino, 2008; Valentino et al., 2008). Besides being the proposed location for the Prospect Fault, Hinckley Lake conceals the nonconformity between Proterozoic

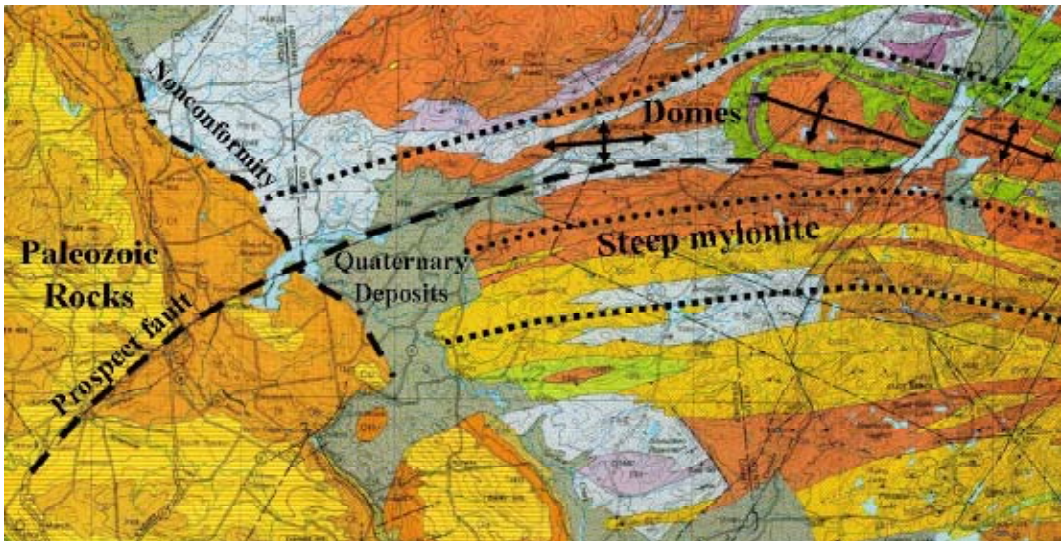

Fig. 2. Detailed geologic map of the study area in the western Adirondack mountains, New York. Hinckley Lake is located at the boundary between Paleozoic and Proterozoic rocks (heavy dashed line).

crystalline rocks and the Paleozoic limestone units of the Trenton Formation (Fisher, 1976). Additionally, the broad valley that contains Hinckley Lake was once part of an ancient glacial lake that deposited a veneer of quartz-rich sand. Considering the complexity of the subsurface and surface geology near and under Hinckley Lake, this study proposed to follow the procedure outlined by Chiarenzelli et al. (2008), and examine the lake using geophysical mapping tools. Therefore, a high-resolution magnetic survey was conducted on Hickley Lake in late September, 2008 with the objective to produce a magnetic map and models to better understand the geometry of rock bodies, and the location and kinematic history of the Prospect Fault.

III. Methods

As previously mentioned, a magnetic survey was completed on Hickley Lake in late September, 2008. The survey was conducted at this time of year to eliminate interference in data collection associated with recreational boaters, and magnetic influences from boats containing ferrous metals. The surveys were completed using a GEM-19GW Walking Gradiometer that was lashed to the front of a 14’ Sea Eagle inflatable motorboat with an 18 hp Tohasu outboard motor (Fig. 3). The gradiometer was set to collect data at a rate of 5 readings per second. At an average boat speed of 19-21km/hr, approximately one reading was obtained every meter. Using the same field equipment, Chiarenzelli et al. (2008) conducted tests to observe the influence of the outboard motor on magnetic field strength and magnetic gradient readings. The gradiometer was operated on the boat with and without the motor, and with the motor running at various speeds. It was concluded that there is no measurable effect on the magnetic readings.

Fig. 3. Photograph of the motorboat with the walking gradiometer attached. Note the distance between the gradiometer sensors and the outboard motor.

The GEM-19GW Walking Gradiometer is outfitted with two magnetic sensors. The bottom sensor measures the total magnetic field strength. The top sensor measures differences in vertical field strength and provides the vertical magnetic gradient. A built-in global positioning system, and automated data collection processor make it possible to survey large areas very rapidly without having to calibrate the gradiometer once the survey starts. Due to the fact that the survey was completed early in the fall when the water level was low, portions of the lake were too shallow to safely operate a boat. This explains the abbreviated survey track on some parts of the lake, as shown in Fig. 4. Despite the low water level, more than 30,000 data pairs of magnetic field strength and vertical gradient were collected in just a few hours. Several times throughout the survey period, the boat was repeatedly navigated to a common location, allowing data to be collected at different times to monitor for diurnal variation in the magnetic field associated with external influences, such as the sun. Fig. 5 shows a plot of the total field strength over time for the repeatedly monitored location on the lake. There was an overall drop in the magnetic field strength of about 50 nT during the survey, so the equation derived from the linear relationship was used to correct the entire data set. To verify the correction, select survey crossing points were examined for variation. At point A (Fig. 6), the data was collected relatively early and late during the survey, and the difference in the corrected total magnetic field is less than -3 nT. The variation at point B is a bit higher, but considering the magnetic anomaly for the entire survey has a range of about 1000 nT, these differences have little impact on the overall mapped anomalies. Finally, the average of all the total magnetic field strength data was subtracted from the data set to produce data of magnetic anomalies associated with the subsurface geology and any other unseen objects (sunken boats, anchor, junk, etc.).

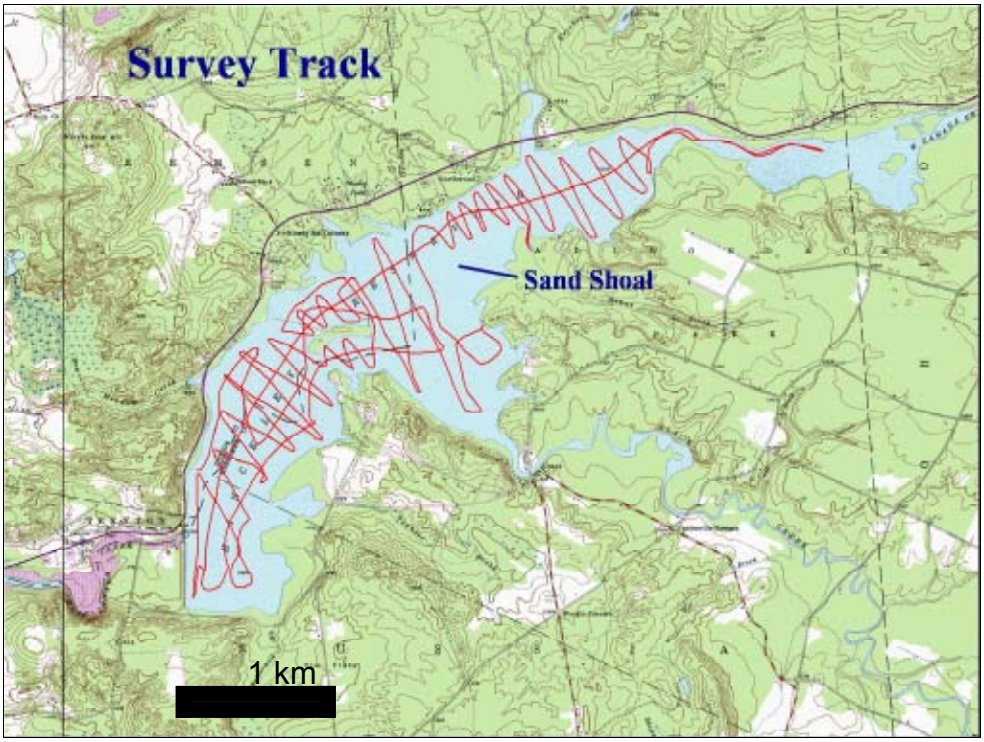

Fig. 4. Topographic map of the Hinckley Lake area showing the survey track completed during this investigation.

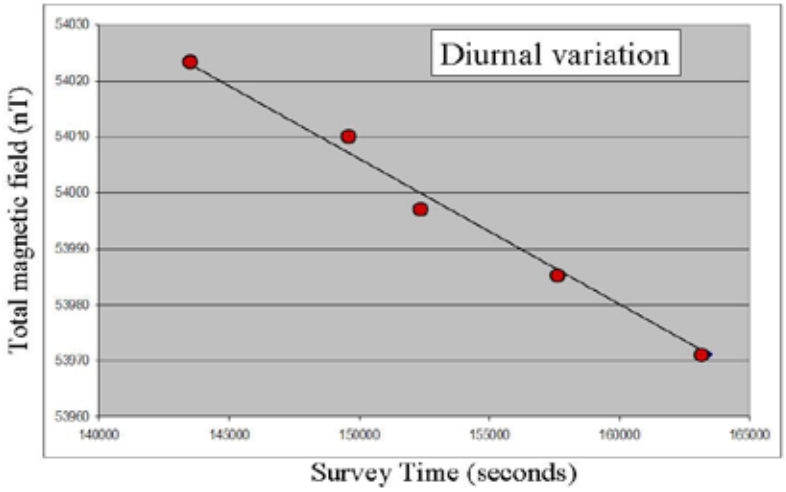

Fig. 5. Graph of magnetic readings that were collected to monitor for diurnal variation.

Laboratory magnetic susceptibility measurements were made on more than 500 rock samples to arrive at reasonable average values to use in modeling. Garnet-biotite-quartz gneiss yielded a magnetic susceptibility range of 0.09 to 0.18, with a mean value that was used in modeling of 0.13. The granitic rocks of the Piseco structure produced susceptibility reading that range between 0.04 and 0.13. The local quartz-feldspar gneiss (that occurs south of Hinckley Lake) contains almost

no mafic minerals and produced very low magnetic susceptibility readings (0.0-0.02). The mean susceptibility values for the three rock types were used in making the magnetic models.

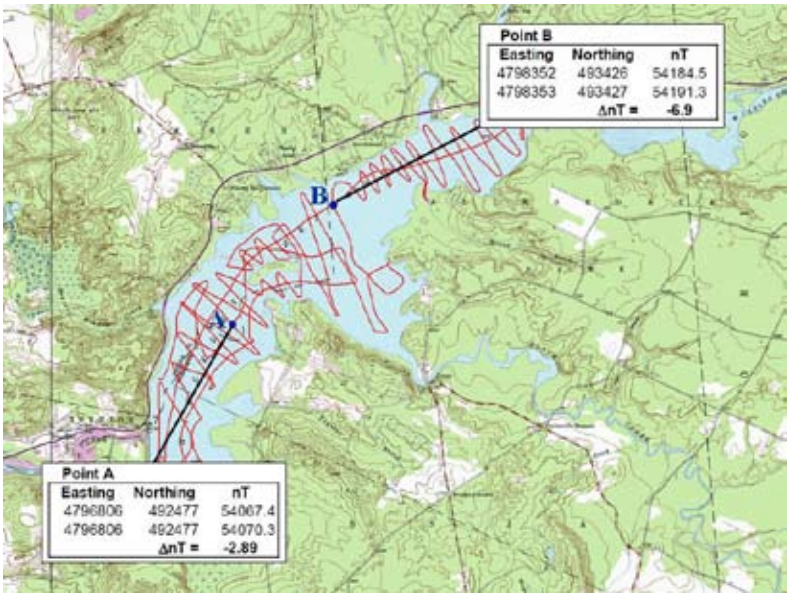

Fig. 6. Map showing the location of two crossing points that were checked for variation in the magnetic field strength after correction for diurnal variation.

IV. Results

Using the Surfer 8.0 computer program, a series of grids and contour maps were produced to best represent the magnetic gradient across Hinckley Lake (Fig. 7). The total anomaly range is about 1150 nT, with the highest values forming a magnetic lineament along the north shore of the lake. Some anomalies can be directly correlated with man-made structures, such as the concrete spillway at the western edge of the lake that correlates with a negative magnetic anomaly.

Regional geology shows that the Paleozoic Trenton limestone appears to have little influence on the high linear anomaly and the transition to much lower magnetic anomalies toward the southern side of the lake. As well, there is no apparent correlation between magnetic anomalies and the Quaternary glacial sedimentary deposits. This suggests that the main anomalies are related to mineral variations and structures in the local Proterozoic metamorphic rocks. North of Hinckley Lake, the Proterozoic bedrock is made up of highly deformed pelitic and psammitic gneisses that locally contain migmatite. These rocks contain up to 10% garnet and biotite, both of which are minerals containing iron and magnesium (mug on the geologic map of New York).

As before, the Prospect Fault projects eastward from Hinckley Lake through the narrow West Canada Creek valley to the area of Piseco Lake. The NY state geologic map shows the Prospect fault terminating against a northeast-southwest striking fault at Piseco Lake (Fig. 8). Cannon (1937) and Valentino et al. (2008) reported that reported that the Piseco Lake region is underlain by a Proterozoic structural dome and steep ductile shear zone (Piseco Lake structure) developed in mostly granitic rocks. In other regions of the Piseco Lake structure, it was reported that metasedimentary rocks of

the Sacandaga Formation wrap the dome (Kusky and Loring, 2002). The Prospect Fault lineament appears to occur in the transition between the dome and the steep shear zone.

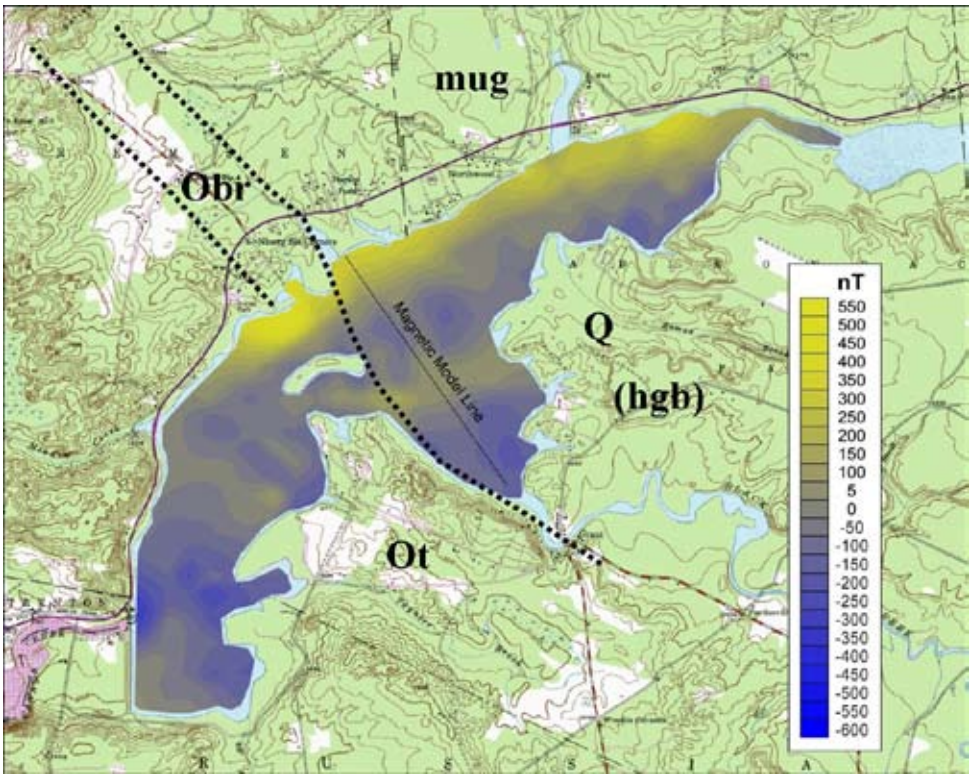

Fig. 7. Magnetic anomaly map for Hinckley Lake plotted on the topographic map and showing the trace of bedrock contacts. Obr & Ot: Trenton formation; mug: Metasedimentary rocks; Q: Quaternary glacial deposits. Model line for Fig. 8 is shown.

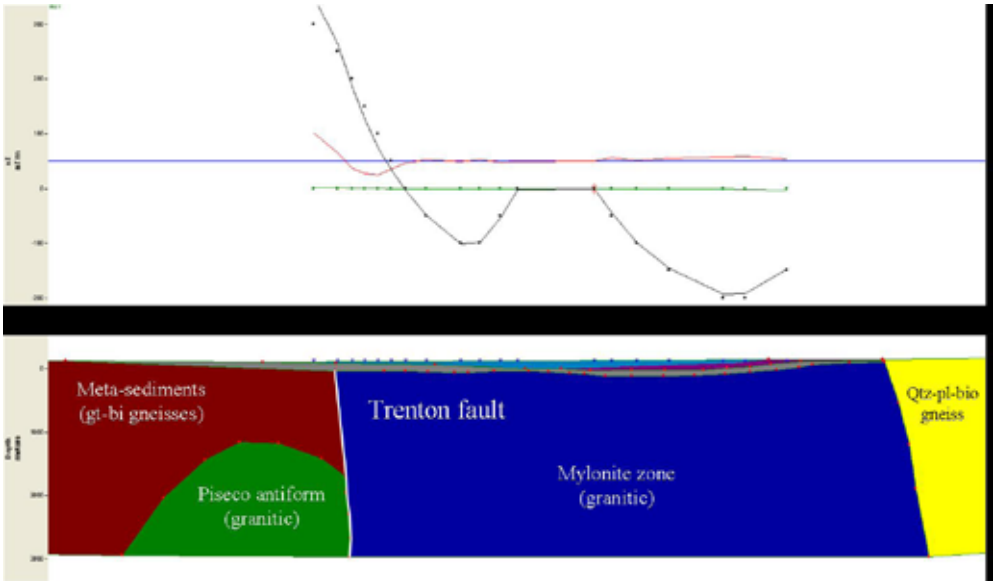

Fig. 8. Geologic model along the line shown in Fig. 7, based on the magnetic profile.

Integrating the well constrained structural geology from the Piseco Lake region with the distribution of rock units in the region of Hinckley Lake, several magnetic models were developed. A linear profile of magnetic field strength was extracted from the magnetic map at the widest part of the lake, and crossing the magnetic anomalies previous described. In principle, an infinite number of models could solve the provide, however, the best model will take into account the regional geology, structures and magnetic susceptibility measurements. Using the GMSYS program, models were produced.

The best model that both matches the observed data and integrates the geology (Fig. 8) shows the projection of the Piseco granitic dome with a cover of garnet-biotite gneiss. This two dimensional distribution of rock units, and associated magnetic susceptibility values, reasonably solves the northwest end of the model. The Prospect Fault is modeled as the subvertical boundary of the dome with mylonitic granitic rocks to the south. The southern end of the magnetic model is solved with a domain of quartz-plagioclase gneiss. The magnetic model is similar overall to structural cross sections near Piseco Lake (Cannon, 1937; Valentino et al., 2008), and most significantly, the model supports the idea that the Piseco dome is separated from the mylonite zone across the Prospect Fault. Finally, there appears to be north-down off-set across the Prospect Fault, which is consistent with displacement of Paleozoic rocks farther west.

V. Conclusions

Potential fields data for New York State (Jacobi, 2002) suggest that Hinckley Lake is located on the edge of a magnetic high that correlated with the Piseco Lake structures. The high-resolution magnetic anomaly map that was made during this investigation is consistent with the regional magnetic anomalies. Geophysical surveys of other Adirondack lakes (Chiarenzelli et al., 2008) produced positive results in understanding the attitude and distribution of late Tertiary brittle faults, and the results of this investigation are equally positive. At Hinckley Lake, the Prospect Fault is the boundary between rock bodies with higher susceptibilities to the north, and lower susceptibilities to the south. The boundary between these rock types is the transition from a steeply dipping mylonite zone to the south, and the Piseco dome structure to the north. The magnetic data and the model strongly suggest a subvertical contact between these structures with displacement direction consistent with other regions where the Prospect Fault displaces Paleozoic strata.

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KINEMATIC ANALYSIS OF THE PISECO ANTIFORM ALONG THE SACANDAGA RIVER TRANSECT, SOUTHEASTERN ADIRONDACKS, N.Y.

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During this study, a detailed macro- and micro-structural analysis was undertaken along the Sacandaga River transect to understand the kinematic history. Oriented samples and structural field data were collected from all the outcrops located between Wells and Northville, NY. The foliation attitude varies and defines the foliation arch of the Piseco antiform. Mineral elongation lineations are consistently subhorizontal and trend of about 110 degrees. Each sample was cut to reveal mutually perpendicular rock faces oriented 1) parallel to foliation and lineation, 2) perpendicular to foliation and lineation, and 3) perpendicular to foliation (S) and parallel to lineation (L). All samples contain excellent macroscopic kinematic indicators such as sigma and delta grain-tail complexes, and/or Type I S-C foliations. Rocks from the antiform north limb reveal low-angle shear parallel to the lineation with top to the west displacement. Rocks form the south limb also reveal low angle shear parallel to the lineation with top to the east displacement. The core of the antiform is dominated by L-tectonite, and the lack of a macroscopic foliation hampered shear sense analysis. Considering the mineral elongation lineations are sub horizontal, the north and south limbs of the Piseco antiform along the Sacandaga River transect experienced sinistral shear. This is consistent with the shear sense that was reported for the Piseco Lake region, and suggests that the Piseco antiform developed in a sinistral shear couple.

I. Introduction

This studies' purpose is to obtain sample to further understand the macro kinematic features of the Piseco Antiform in the Southern Adirondacks (Figs. 1A and 1B). Different interpretations of this region have been published, but marco-kinematic indicators have been overlooked. Many methods were used in order to unravel the complex history of this structure. Rock samples were taken from Route-30, or named the Sacandaga River Transect for this study. This road travels North-South and is approximately eighty kilometers east of Piseco Lake (Figs. 1A, 1B and Fig. 2). The Sacandaga River Transect conveniently divides the antiform in half and forms a cut through the width of the antiform from the Northern Limb to the Hinge, then to the Southern Limb. After compiling the kinematic indicators along the Sacandaga River Transect, a more complete history of the development of the Piseco Antiform can be revealed through structural analysis.

II. Materials, Methods and Procedures

II.a. In the field

The rock samples were taken from Wells to Northville, New York and then labeled with an appropriate name indicating its outcrop number as well as an orientation (Appendix 1). A GPS system was used for an accurate location reading for each recorded outcrop along the Sacandaga River Transect.

Lineation and, if present, foliation measurements were taken at each outcrop along the transect. A rough mineralogy and rock-type as well as some joint data were also documented for further lithologic assemblages on the map-scale.

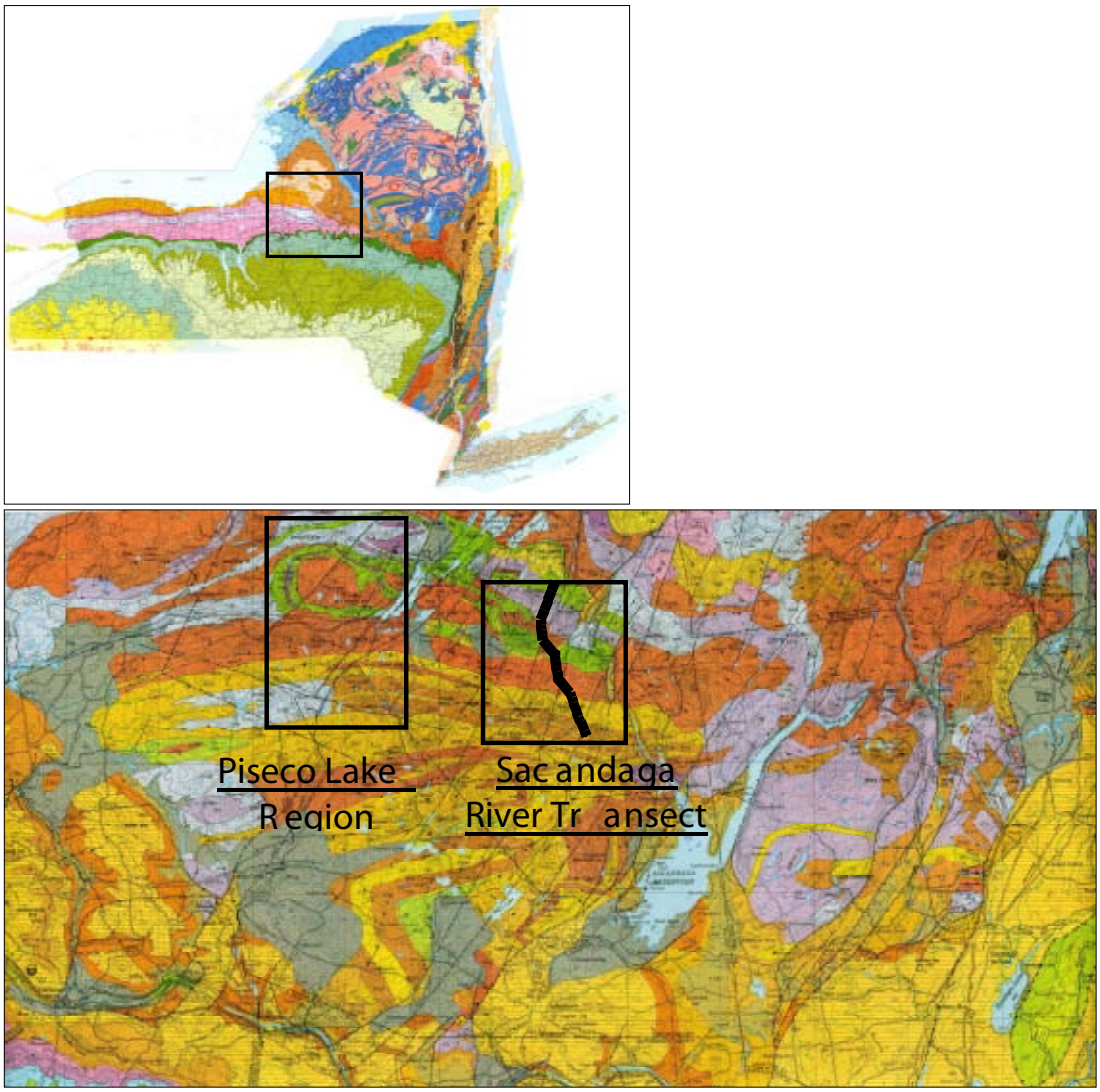


Fig. 1A. Shows two study areas for the Piseco Lake Shear Zone in the Southern Adirondacks. The Sacandaga River Transect runs North- South along Route 30 for about 5 miles.

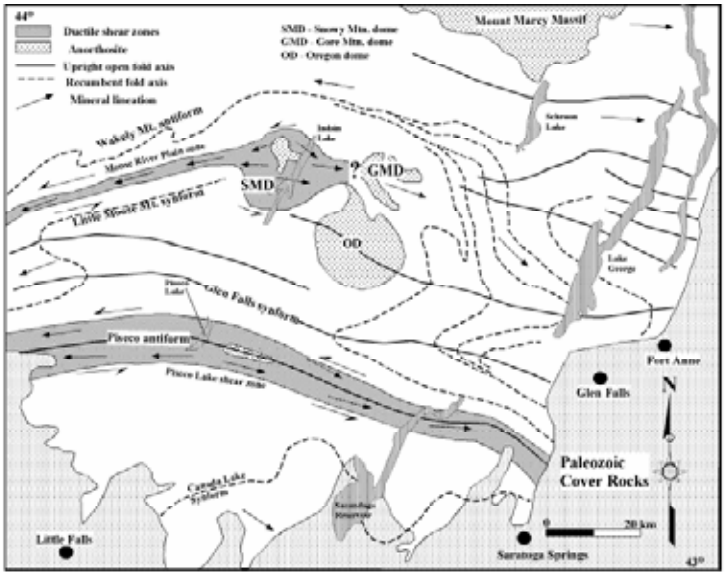
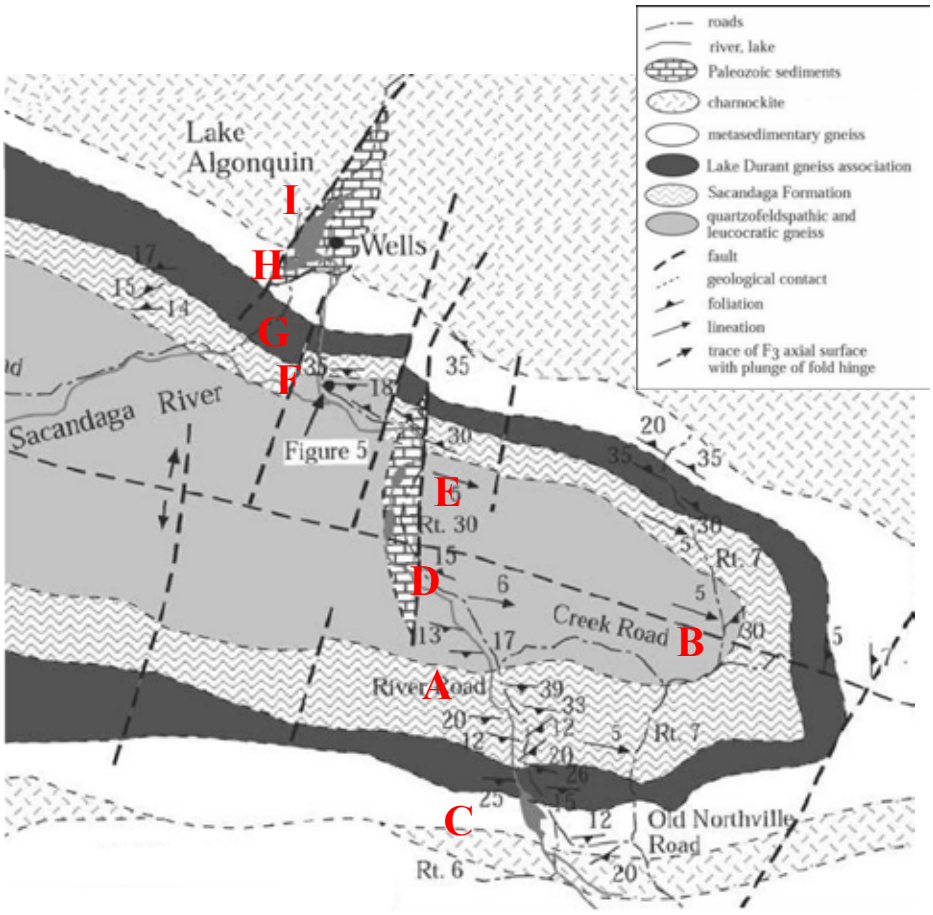


Fig. 1B. This is a general geologic map of the central and southern Adirondacks. The Piseco Lake shear zone, the Piseco Antiform, and Piseco Lake study areas are seen in the southern half of the map.
Image from: Friends of the Grenville Field Trip 2008: Indian Lake, New York; Valentino (2008).



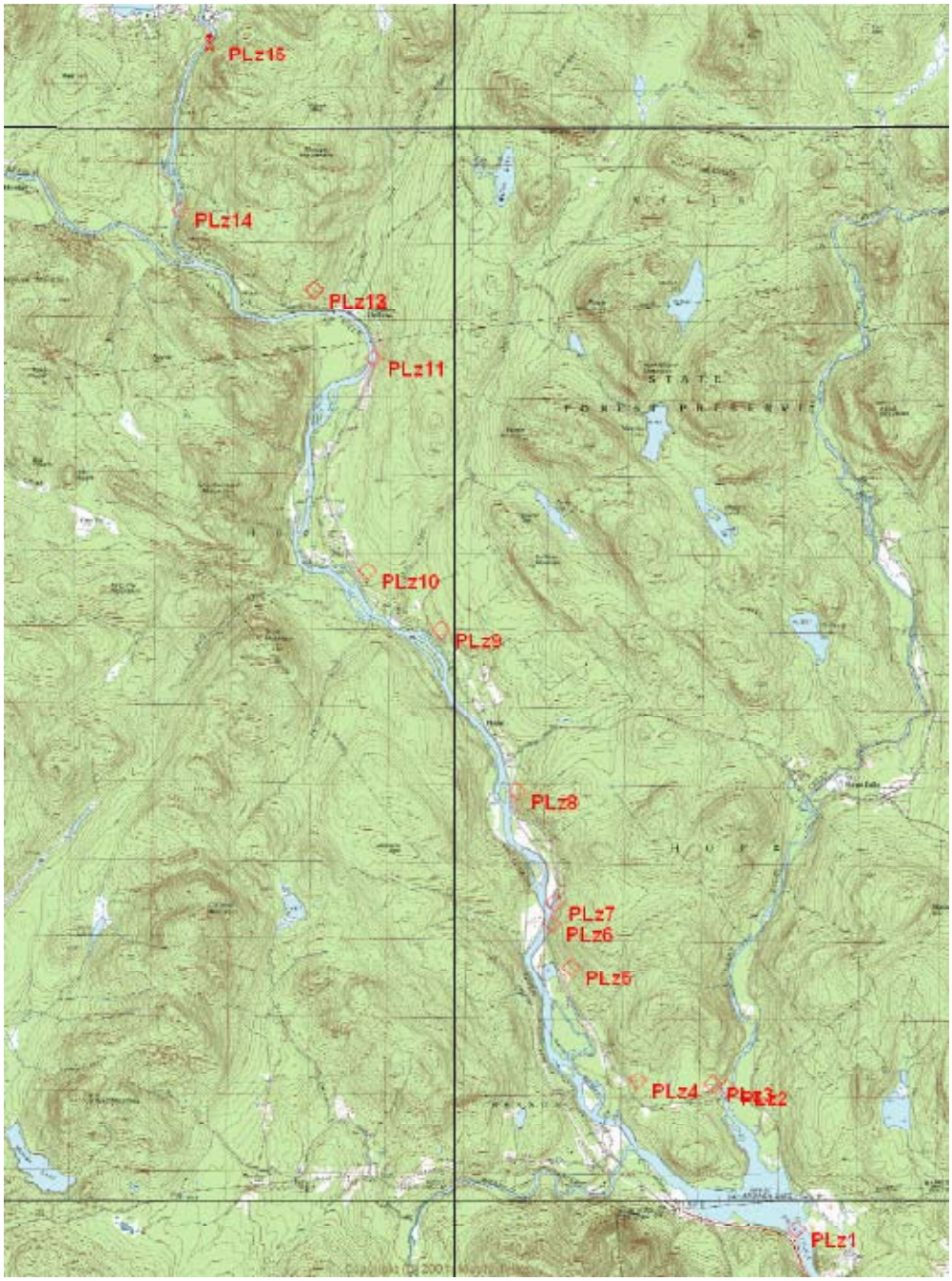


Fig. 2. Top image shows Piseco Antiform and its lithologic domains, hinge axis, subhorizontal lineation trends, wrapping foliation measurements around the core, fault locations, and major outcrop sample locations (A through I). Bottom image shows a quadrangle map of Outcrop Locations and corresponding names.
Top Image from : Kusky and Loring (2001).

II.b. In the lab

Outcrop locations taken from the GPS system were then transposed on a quadrangle map along with its respective lineation and foliation measurements and lithology.

Using a rock saw, samples were later cut on three or more faces to reveal the lineation and foliation and the relation to each other. These cuts were mutually perpendicular rock faces oriented parallel to lineation and foliation, perpendicular to foliation and lineation, and perpendicular to foliation and parallel to lineation. Images were captured of the exposed rock faces of the best samples (Figs. 3 - 11).

Although rock samples have prevalent foliation and lineation, Type I S-C foliations, sinistral sigma clasts and asymmetrical delta-grain-tail-complexes were also noted for overall shear movement (Figs. 3 and 5).

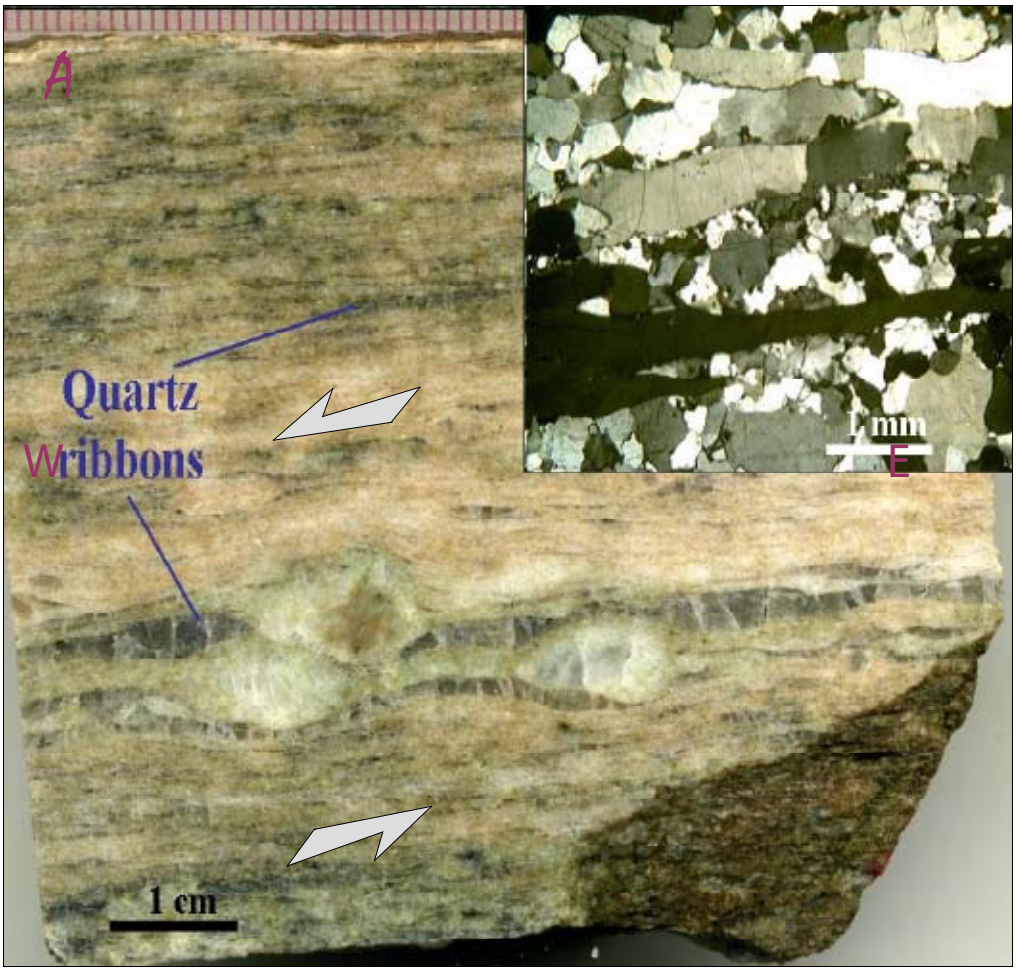


Fig.3. This is rock sample A taken from outcrop PLz 6 on the South Limb from the map in Fig. 2. Note the quartz ribbons and asymmetric sinistral delta tail complexes in the deformed gneiss and the L=S fabric.

Fig. 4. This rock is sample C on the Hinge in the core of the antiform from the map in Fig. 2. It shows quartzofeldspathic gneiss dominated by lineations. *Sample courtesy of D.W. Valentino*

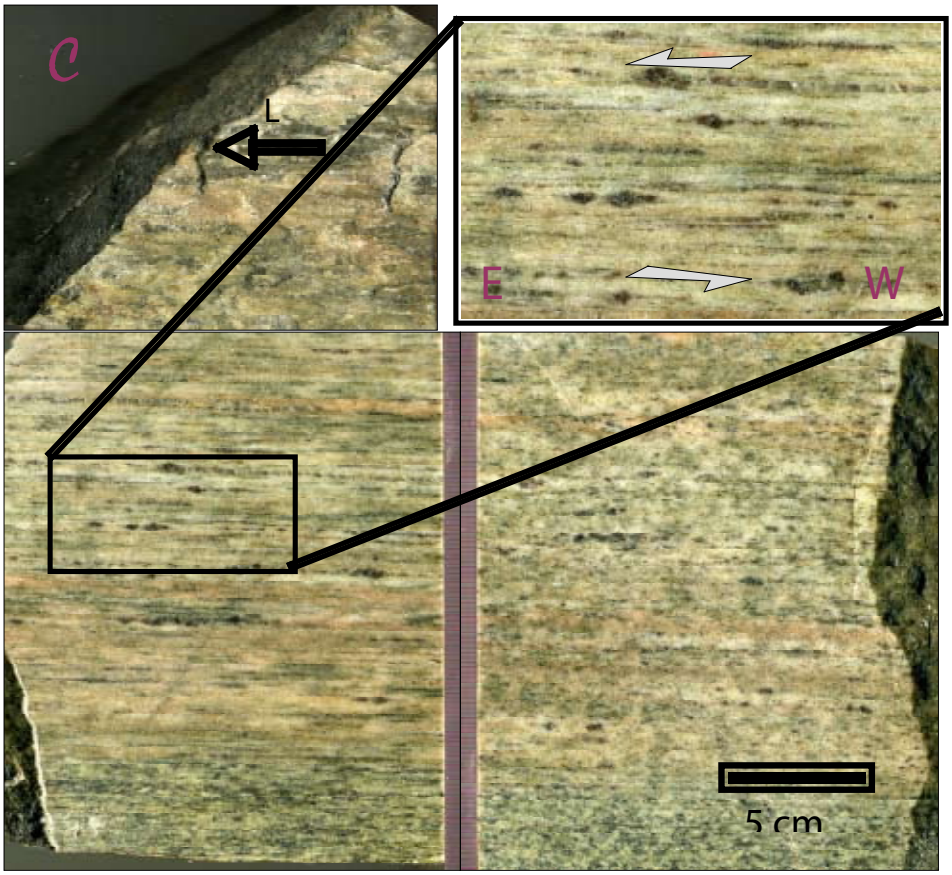


Fig. 5. This rock is sample E taken on the South Limb from the map in Fig. 2. It shows the Lake Durant Formation. Note the lineations and foliations as would be expected in the South Limb and the sinistral sigma clasts.

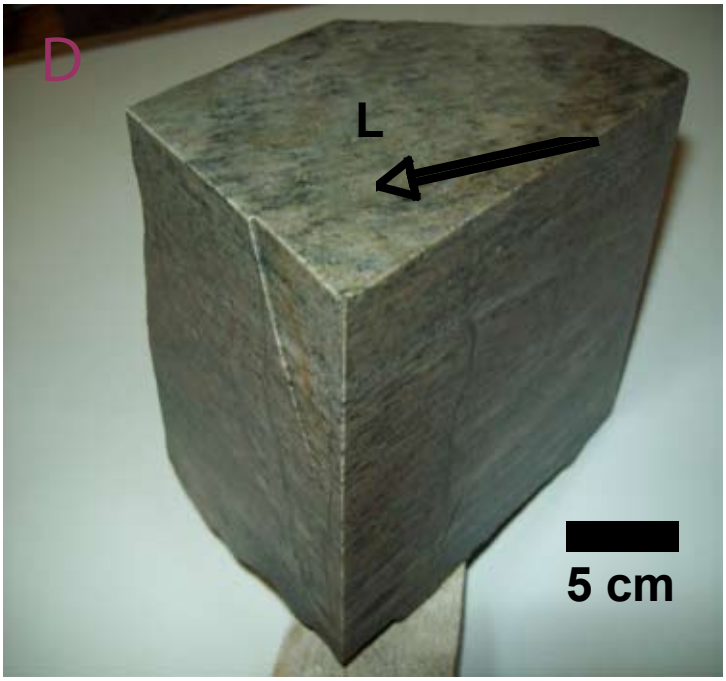


Fig. 6. This sample taken at outcrop PLz 7 in the core of the antiform. It shows a quartzofeldspathic gneiss with excellent L=S tectonite.

Fig. 7. A hand sample of megacrystic granitoid from outcrop PLz 9 in the core of the antiform. Note the large, quarter-sized grains of feldspars.

Fig. 8. This rock sample was taken at outcrop PLz 11 on the North Limb. Note the strong foliation and weaker lineation. This is a good example of an L<<S tectonite in the North Limb.

Fig. 9. This sample was collected at outcrop PLz 11 in the North Limb of the antiform. It shows porphyroblastic garnet, (indicating metamorphism) and an excellent delta tail complex indicating sinistral shear. This samples has a well-defined foliation and seems to be an L<<S tectonite.

Fig. 10. A hand sample of metasedimentary gneiss with crenulated foliation fabric from outcrop PLz 14 in the North Limb of the antiform. This is an L<<S tectonite with no sigma or delta clasts.

Fig. 11. This sample was taken from outcrop PLz 15, the northernmost outcrop on the North Limb. It shows large grain size and no kinematic indicators, foliation or lineation at all.

III. Geologic Setting

III.a. Lithologies

From the northern-most section of the North Limb of the Piseco Antiform, charnokitic gneiss dominates. Just south of Wells, New York on the North Limb is metasedimentary gneiss, then the Lake Durant gneiss association (deformed granite), then the Sacandaga Formation (quartzites), and lastly, at the Hinge is the quartzofeldspathic gneiss. The Sacandaga Formation is made up of well-layered sillimanite-garnet-quartzofeldspathic gneisses (McLelland, 1977). Although the dominant lithology in this area is quartzofeldspathic gneiss, calc-silicates are also documented throughout the field area (McLelland, 1977). The Hinge of the Piseco Antiform trends WNW-ESE and relatively younger faults cut through the structure nearly perpendicular to the Hinge (Fig. 2).

It has been speculated that this area of the Southern Adirondacks was once a transition zone from a deep basin to a shallow shelf environment (McLelland, 1979). This explains the lithologic variations from pelitic to carbonate and quartz sands, respectively. This further indicates a facies change as well (McLelland, 1979).

III.b. Age

One sample from earlier research done by Valentino and Charenzelli (2008) in the same study area was used for preliminary geochronology (Fig. 12). Although this is only one sample, it does conclude other age speculations. The U^{235}-Pb Zircon dating revealed the ages at the rims to be from about 1150 to 1080 MA and the cores to be 1167 +/- 7 MA (Fig. 12). This field area, less specifically, has been noted by other geologists to be Mid-Proterozoic in age. The dating done by one sample certainly clarifies the age of this area to a much smaller window.

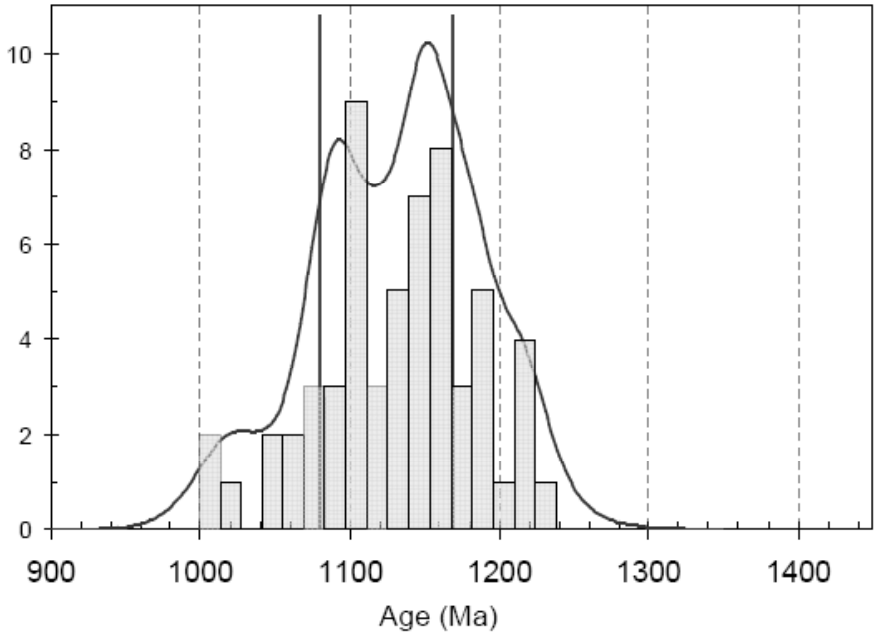


Fig. 12. This histogram shows 56 data points from the Piseco core rock zircons. Vertical dark lines represent ages of 1079 +/- 8.1 and 1169 +/- 7 Ma. This is a preliminary age and relates to other igneous bodies in the Adirondacks. *Image from: Friends of the Grenville Field Trip 2008: Indian Lake, New York; Valentino (2008)*

IV. Deformation Processes and Kinematic Analysis

IV.a. Marco-Structural analysis of the south Limb of piseco antiform

Mineralogy

Outcrops 1-4 are the outcrops on the South Limb to the perceived edge of the core of the Piseco Antiform, with Outcrop # 1 being the most southern outcrop. The rock type is consistently granitoid or quartzofeldspathic gneiss and metamorphosed to the granulite facies due to intense deformation processes. Mineralogy from most abundant to least abundant is as follows: plagioclase feldspar, alkali feldspar, pyroxenes, hornblende, and quartz with index minerals including biotite and garnet (Fig. 5). These index minerals lead to the conclusion of a metamorphism conducive of the granulite facies.

Marco-Kinematics

At the Southern-most outcrops along the Sacandaga River Transect, Foliation was noted to be much stronger than lineation (L<<S) (Fig. 5). Foliation is very strong and well-defined. It varied from 268 to 346 degrees and was consistently subhorizontal from 8 to 28 degrees from the horizontal plane (0 degrees). At the southernmost outcrop, large augens of plagioclase feldspar, 2-4 inches were seen and were noted to have top-to-the-east displacement which signifies a sinistral ductile deformation motion in the bedrock. One lineation measurement could be taken and the plunge was also subhorizontal, at 8 degrees below the horizontal and trend was nearly perpendicular, at 216 degrees.

IV.b. Marco-structural analysis of the core of piseco antiform

Mineralogy

The dominant rock type observed through the samples taken along the Sacandaga River Transect in the core of the Piseco Antiform is relatively course-grained quartzofeldspathic gneiss or megacrystic granitoid. These rock types were observed outcrops labeled as Outcrops 5-9. Overall mineralogy did not vary greatly. About 75% of samples were plagioclase or alkali feldspar, 25% was quartz and, if present, biotite and hornblende was about 5% or less. Grey dynamically recrystallized quartz ribbons or aggregates were present in some samples as well (Figs. 4 and 6).

Marco-Kinematics

Through the samples collected, the core of the Piseco Antiform exhibits L=S tectonites (Fig. 6). Sinistral sigma clasts and asymmetric delta-tail-complexes are abundant throughout the area. Foliation measurements taken from the outcrops and samples show a slight variation of 172 to 202 degrees perpendicular to the plane and dip subhorizontally from 11 to 18 degrees from the horizontal plane. Lineations vary slightly within this region with shallowly dipping plunges changing from 2 to 18 degrees from the horizontal plane and the trend from 108 to 122 degrees. This is nearly

perpendicular to the foliation. These lineations were dominantly defined in hand sample by dark grey, rod-shaped mineral aggregates of recrystallized quartz as well as potassium feldspar and plagioclase feldspar (Figs. 4 and 5). These features are consistent with a shearing deformation process of the field area.

IV.c. Macro- analysis of the north limb of piseco antiform

Mineralogy

As the outcrops move from the core to the northernmost part of the limb the rock types change drastically. These outcrops are labeled as Outcrops 10-15 with Outcrop # 15 being the Northern most outcrop of the transect. The majority of the samples collected on the North Limb of the Piseco Antiform were quartzofeldspathic gneiss, except for the northernmost outcrop which was charnokitic gneiss and the outcrop just south of that had a metasedimentary gneiss rock type (Fig. 7).

Near the core, the quartzofeldspathic pencil gneiss samples have a mineralogy of 70% plagioclase and alkali feldspars, 20% quartz, and 10% garnet. The outcrop north of this with a metasedimentary rock type is course-grained and has a composition of 60% quartz and 40% plagioclase and alkali feldspars (Fig. 7). The charnokitic gneiss sample at the northernmost outcrop has very large grain with a composition of 35% plagioclase feldspar, 30% hypersthene, 25% augite, and 10% biotite (Fig. 10).

Macro-Kinematics

Near the core of the antiform, there are L<S tectonite samples that have multiple sigma clasts and larger augens surrounded by a finer-grained matrix wrapping around the porphyroclast with top-to-the-west displacement (Figs. 4 and 6). The foliation measurement taken was 210 degrees perpendicular to the plane and dipping 38 degrees from the horizon. The lineation reading taken from the outcrops was perpendicular to the foliation and trending 110 to 136 degrees and plunging subhorizontally 3 to 4 degrees.

The next northern outcrop having metasedimentary gneiss showed crenulated, folded and warped foliation indicating at least a two or even three part fold history. The sample exhibited an L<S tectonite without any sigma or delta clasts.

The northernmost outcrop sample was collected near Wells, New York. The charnokitic gneiss sample had a very large grain size and a very weak foliation with no lineations.

Spectacular L<S and L<<S tectonite samples collected on the North Limb of the Piseco Antiform revealed low-angle shear parallel to the lineation with top-to-the-west displacement consistent with the sinistral shear model for the Piseco Lake region (Figs. 3 and 13).

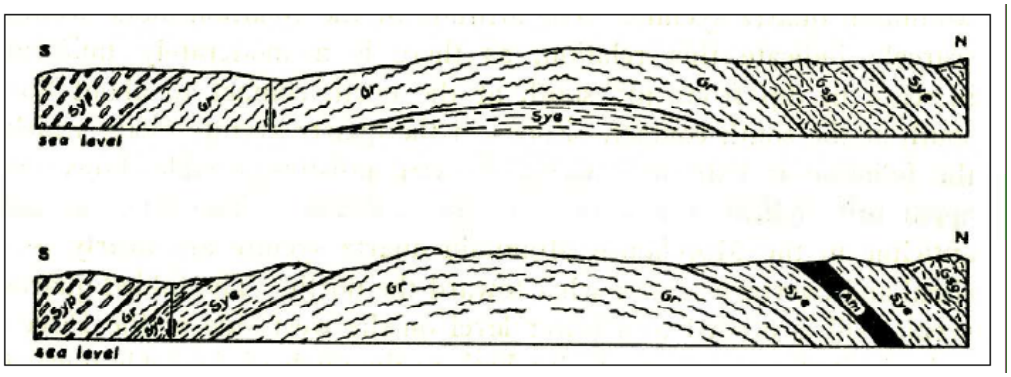


Fig. 13. Shows a cross section of the core of the antiform having dominant L- tectonites and the North and South Limbs containing L-S tectonites with foliation wrapping around the core of the structure. *Image from Cannon (1937).*

IV.d. Overall foliation of the piseco antiform

By and large, the foliation is dominantly defined by recrystallized feldspar or quartz ribbons, just as the lineations are. The foliation "wraps" around the core of the antiform structure such that, in the North Limb, it dips moderately to steeply to the north, and in the South Limb, the foliation dips moderately to steeply to the south (Fig. 13). This foliation defines the upright antiform as it is seen today (McLelland, 1977).

V. Results

The shear zone can be divided into domains with the northern-most being the core granitoid or quartzofeldspathic gneiss in composition, the area just south of that to be steep mylonite transforming into shallow mylonite to the east (Fig. 14). The core shows intense lineated tectonite samples while the limbs of the antiform show very weak lineation and strong foliation. The surrounding area is encompassed by charnokitic gneiss.

In the North and South Limbs of the antiform, the marco-fabric in hand sample consistently show a sinistral shear sense considering the mineral elongation lineations and foliation measurements as well as the sigma and delta clasts. This reliable and predictable data collected from the antiform and surrounding Piseco Lake region, suggests that the Piseco Antiform developed in a sinistral shear couple.

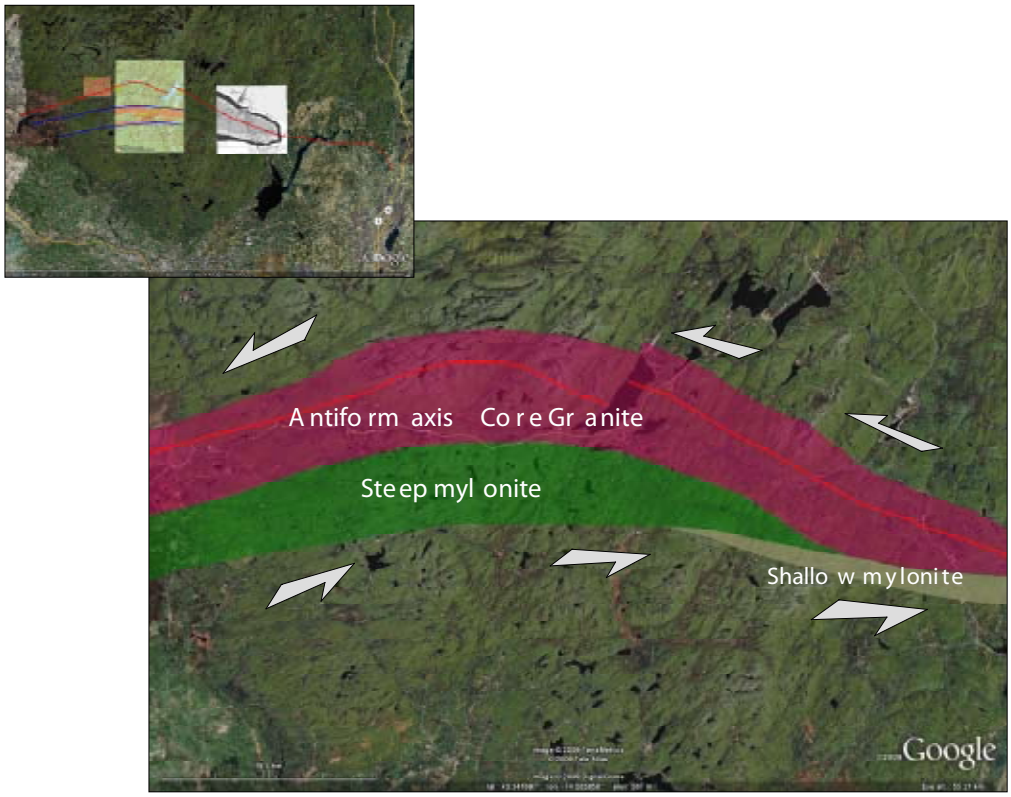


Fig. 14. A preliminary compilation of the Piseco regions with detailed information were compiled using Google Earth. The image to the right shows general domains of varying strain in the Piseco Lake Shear Zone, note the overall sinistral shear. *Image courtesy of Google Earth.*

VI. Conclusion

The structural and kinematic characteristics seem to be a direct result of sinistral shear of the Piseco Antiform through the constant subhorizontal and 108 to 122 degree stretching mineral elongation lineations of dynamically recrystallized quartz found at the core of the antiform, Type I S-C fabric components, the sinistral sigma clasts and the asymmetrical delta-tail-complex kinematic indicators.

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Appendix 1. The rock samples were collected from Wells to Northville, New York by a fellow college, Lindsay Williams. Rock Sample B collected at the Hinge of the Piseco Antiform was taken by David W. Valentino.

Rock Sample Number	Orientation	Foliation	Lineation	Rock Type	Outcrop Letter	Outcrop Name
LWRT30-5	240/46	172/18	02/109	Quartzofeldspathic Gneiss	A	PLz-6
DValen-PACore	Unknown	N/A	N/A	Quartzofeldspathic Gneiss	B	N/A
LWRT30-3	145/86	346/16	08/216	Quartzofeldspathic Gneiss	C	PLz-4
LWRT30-6	130/78	N/A	02/108	Quartzofeldspathic Gneiss	D	PLz-7
LWRT30-9	099/62	None	None	Megacrystic Granitoid	E	PLz-9
LWRT30-11	180/86	210/10	None	Quartzofeldspathic Gneiss	F	PLz-11
LWRT30-10	180/90	210/38	03/110	Quartzofeldspathic Gneiss	G	PLz-11
LWRT30-3A	180/70	N/A	None	Metasedimentary	H	PLz-14
LWRT30-17	230/78	N/A	N/A	Charnokitic Gneiss	I	PLz-15

CHRISTIAN INFLUENCES ON INUIT ART

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Sponsor: Lisa Roberts Seppi
Department of Art

From the time of first contact with Europeans to present day, there can be no doubt of the tremendous impact Western thought has had on the natives of North America. Both Roman Catholic and Protestant missionaries, for example, settled in North America in order to convert Native Americans to Christianity. In many cases, religious symbolism was used in order to educate the non-English speaking masses. The exposure to these images left an unmistakable impression on their art. This talk explores the effect Christian imagery has had on Native American art by discussing two examples from the Inuit culture of northern Canada. Samples of miniature ivory carvings in the Pelly Bay region and wall hangings at Baker Lake show the direct impact Christianity had on these two already established art forms. Images of each will be analyzed to demonstrate these influences.

From the time of first contact with the Europeans to present day, there can be no doubt of the tremendous impact Western thought has had on the Native Americans of North America. What began as a trade relationship grew into an avenue for missionaries to convert the "savages" into members of a "civilized" society. Through this process, in every region of North America, clear influences in Native American art can be found. Such is the case with the Inuit culture of northern Canada. With the use of Christian and Inuit imagery in already established art forms, this paper will show the contributions of the missionaries, and by extension Christianity on Inuit art.

Since their arrival in Greenland in 1721, missionaries have had an effect on all aspects of Inuit life. Their primary goal was to convert the Inuit to Christianity. In doing so, many of the missionaries made attempts to undermine Inuit beliefs and traditions. Banning spirit masks, discouraging plural marriage, and condemning Shaman as agents of Satan were ways in which some missionaries thought to control the Inuit population ("Time- Life," 1994). There were, however, many missionaries who made positive contributions economically, socially as well as spiritually. Missionaries began to learn the Inuit language in order to assist them in negotiating with outsiders, such as traders and whalers. Many Catholic and Anglican missionaries provided healthcare in hospitals and in remote areas to a population wrought with disease brought on by contact with the West (Oswalt, 1979). In Hudson Bay in 1894, Reverend Edmund Peck developed a syllabic script for the Inuit language and soon many denominations were translating their text into the Inuit language (Crandall, 2000). As a solid relationship between the missionaries and their parishioners grew, fondness of Inuit art developed as well. In Nelson Graburn's article "Canadian Inuit Art and Coops: Father Steinmann of Povungnituk" he suggests that, "missionaries dedicated to replacing indigenous beliefs with their own, nevertheless often became collectors, conservators and instigators of Native arts." He continues, "From my experience, missionaries with long experience in one field area are likely to develop a respect and even a protective attitude toward "their" Natives, quite apart from their religious activities" (Graburn, 2000, p.14). By 1950, the majority of the Inuit population had converted to Christianity.

One of the best examples of such a relationship is between the miniature ivory carvers of Pelly Bay and the Roman Catholic missionary, Father Franz Van de Velde. For thousands of years, miniatures have been created for a variety of different reasons. Throughout Inuit history, miniature carvings were used as replacements for their life-size counterparts. Animal spirits could be represented in miniature and worn by a hunter to attract that animal in the hunt. Instead of a dead person's property accompanying them to their grave, miniatures of their belongings would go in their place. Miniatures are also used to teach children techniques such as making dolls for girls and creating hunting spear for boys (Laugrand & Oosten, 2008). Finally, miniature ivory carvings were made for use in trade and for sale to collectors and tourists. In 1945, impressed with the skill required to make such intricate carvings, Father Van de Velde encouraged the men and women carvers in his community to produce large quantities of ivory miniatures.

Many of these carvings depict the Inuit people performing routine tasks accompanied by their animals. *Man and Woman with Dog Team* made by Agnes Nulluq Iqqugaqtuq of Pelly Bay in 1967, is an example of a scene one might see every day in the region where she lives (Hessel & Hessel, 1998). (Fig. 1) As the title suggests, this ivory carving is that of an Inuit man and woman together with their five dogs and sled. Set on top of a piece of black stone, the white ivory figures create a striking contrast against the dark base. The man in the scene, shown in a stiff pose facing his dogsled is crafted smaller than the woman. This may suggest depth perspective or perhaps that the woman is carrying a child underneath her parka. Attached to the man's hand is a thin piece of sinew, which he holds over his head as a whip to keep his dogs in line. Both figures are not on the sled itself, but it is carved to show supplies strapped to it. The dogs are set in various poses equidistant from each other, all pointing forward. All five are attached to the sled using sinew harnesses. There is a sense of anticipation in the front four dogs as they are presented leaning forward. The back dog seems more at rest as his head is pointing down. Very small carvings of cans that would rattle when the sled is in motion are attached to the sinew reigns. The woman is looking on a few paces away from the man. She is wearing a parka with a flap in the front (also an indicator that she may be carrying a child). She is also shown with a misshapen head which suggests she is wearing a hood. At her ankles are large blocks jutting out on both sides to represent the fur that would line her boots. A common characteristic of ivory carved scenes, such as this one, is the lack of facial features and clothing details. Here, horizontal lines are used to delineate the mouths and eyes, a square cut-out exists for the nose, and only a minimum of carved outlines are used to portray arms, legs and mittens. The smooth surface of each figure also establishes lack of carved detail.

According to Jennifer Gibson in *Christianity, Syncretism, and Inuit Art in the Central Canadian Arctic*, "Arctic missionaries supported imagery which deals with traditional Inuit culture and spirituality, as well as that which renders Christian themes, thus allowing Inuit artists the freedom to explore these subjects in their work" (2001, p. 234). In addition, because carvings were traditionally used as teaching tools, it is not surprising that the Inuit artists, under the direction of the missionaries, used Christian imagery as a way to educate the public. *Mass* (Fig. 2), an ivory carving made by Antonin Attark of Pelly Bay in 1954, is one example that clearly demonstrates the impact of religion on his art by showing Inuit worshipers in a church (Blodgett, 1988). Similar to *Man and Woman with Dog Team*, Attark has chosen to carve ten people with their dogs performing a task of daily life. At the far right of the scene, a square cube for an altar is carved with a very tiny challis and cross placed on top. In front of the altar, facing the cross, a priest in a long robe is

Fig. 1 : Agnes Nulluq Iqqugaqtuq (attrib.) (born 1930), Pelly Bay 'Man and woman with Dog Team,' 1967.

standing on a stool with hands outstretched as if he is saying a prayer. Directly behind him are nine figures set in single file, each facing the priest and the altar. Many of them are shown in different stages of kneeling, one is crossing himself, and two are holding books that suggest hymnals. The two smallest figures represent children. Behind the worshipers are two triangle shaped figures that represent tents, one facing with its opening toward the altar. The orientation of this tent can be viewed as the entrance of the church where the service is being held. Beyond the tents, as is a common theme with these scenes are two dogs who have accompanied the worshipers facing in the direction of the altar as well. The entire scene is set on a bowed ivory bone with "Xs" carved in the side. This bridge-like platform and the linear orientation of the worshipers facing the direction of the altar demonstrates the journey they have taken to get to Christianity. There is, as is customary, little emphasis placed on facial features and clothing; rather, the scene illustrates the realism in many of the "day in the life" type images that were common to the period. This is also demonstrated by showing the worshipers in their normal attire as well as a realistic recreation of an altar and a tent.

Like miniature ivory carving in Pelly Bay, sewing is a tradition for the women at Baker Lake and is passed down from mother to daughter. With work opportunities limited in the later part of the twentieth century, many Baker Lake women took on sewing projects for extra income. In addition to articles of clothing, small appliqué pictures made with left over material were given to a local craft store on consignment. As described by Sheila Butler in her article "Wall Hangings from Baker Lake," "Word soon travelled around the settlement that we were paying better prices for these interesting appliqué pictures, and soon more and more women were bringing them to the shop" (cited in Blodgett, 1988, p. 96).

Fig. 2: 'Mass.' Carving in ivory by Antonin Attark (1909-1960) of Pelly Bay, c. 1954.

Later she realized that these pictures were inspired by a sewing project that was managed by an Anglican missionary's wife, Elizabeth Whitton, in 1966. Soon these pictures became larger and larger. One example (Fig. 3) was an untitled wall hanging created by Kanayuk in 1971 (Blodgett, 1988). Similar to the miniature ivory scenes, this wall hanging depicts various Inuit people performing common tasks along with their animals. Moving clockwise around the wall hanging starting from the top left are cutouts of people doing various activities. These activities include: three people on a dog sled; one man hunting a rabbit with a bow and arrow; one woman with her child smoking fish; one woman scaling a fish with her baby on her back and her dogs looking on; one woman standing watching the other progress with the fish and seal; one woman gutting a seal; two boys wrestling; and two boys carving as a little girl looks on. Kanayuk uses scraps of duffle, felt, and embroidery floss to create colored felt cutouts of the people, animals, and other objects, which are sewn onto a large piece of chocolate brown felt. Embroidery floss is also used to indicate facial features, such as eyes and mouths, and clothing detail like seams down pants and trim along parkas. As is common in wall hangings at the time, there is no set ground line nor is there a sense of landscape or background. This suggests that the people and the tasks they are doing are more important than their surroundings. All images are shown in two dimensions with people and animals shown in profile or frontally. Any attempt at overlapping images is obtained simply by overlapping the fabric. There is no clear perspective as the people are shown in random sizes. The large background piece of felt is finished by sewing a whip stitch around the edges.

Fig. 3: Wall hanging by Kanauk of Baker Lake, 1971.

At the time these wall hangings were being created for sale, missionaries were encouraging parishioners to decorate their churches as well. In an effort to create an environment in which the Inuit could embrace the Christian religion, the missionaries at Baker Lake promoted a sewing circle type women's group to produce wall hangings for the church (Gibson 2001). The untitled wall hanging by Miriam Nanurluk Qiyuk . (Fig. 4) was created for the Anglican Church at Baker Lake in 1976. This wall hanging, like the ivory carvings at Pelly Bay, combines Christian imagery and traditional Inuit life (Blodgett, 1988). Many of the same elements from wall hangings like Kanayuk's still exist in Qiyuks's work. Duffle, felt, and embroidery floss are used to create a depiction of various events from the Old and New Testaments. The wall hanging is put together by sewing colored felt cutouts onto a piece of forest green felt measuring 2.5 ft. by 4.5 ft. Also, facial features and clothing detail are sewn on using colored embroidery floss. Also common to secular wall hangings is the lack of a ground line, a two dimensional representation of the subjects, and a stitch along the entire edge.

What are different are the images themselves. In the center of the wall hanging is a green cutout with the label "Baker Lake." This suggests the cutout is a map of the Baker Lake area. Included on the map are the different islands of Baker Lake surrounded by water, represented by a sewn zigzag pattern, and rivers sewn in pink thread flowing out in different directions from the islands. Using the same composition as wall hangings like Kanayuk's, the sides contain cutouts of people engaged in various activities. For example, there are numerous scenes depicting Christian themes such as Mary washing Jesus' feet, Jesus showing the holes in his hands to one of his disciples after the resurrection, Jesus on his hands and knees carrying a cross, Jesus with a child, and the crucifixion. Activities of everyday life are also depicted in the wall hanging. Two people in the foreground, dressed in Inuit coats, hats, and mittens, appear to be watching the events on their dogsled with

Fig. 4: 'Untitled.' Wall hanging by Miriam Nanurluk Qiyuk of Baker Lake (1933-), 1976

their dogs and animals at their side. In addition, an Inuit person is shown standing in front of the three crosses with a walking stick in his hand, witnessing the events. Although each scene can be separated by the representation of biblical clothing or native Inuit clothing, all the garments are shown using the same color palette of yellow, orange, and green. The map in the center suggests that all these events have a relationship to the Inuit home at Baker Lake. The fact that there is no chronological order to the activities in the wall hanging also suggests that there is no clear distinction of religious beliefs in biblical times and in present day Inuit culture. Through all these elements, Qiyuk is sending the message that Christianity is part of everyday life and therefore demonstrating a clear influence on her art.

Missionaries and Christianity had an influence on Inuit art and culture. While some negative influences did exist, some missionaries chose to foster the creativity of their parishioners. This has not only assisted the Inuit people financially through the trade of their art, it also gave them ownership in their new religion. Both the ivory carvings in Pelly Bay and the wall hangings in Baker Lake demonstrate that art can be used as a teaching tool and that the symbolism of both Christian and Inuit traditions can be found side by side. As artists continue to have the ability to choose subjects that are taken from daily life, both Christianand Inuit art remain a positive way in which the Inuit people express themselves and their experiences with the world.

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VISUAL JOURNALS IN HIGH SCHOOL PHOTOGRAPHYIMPROVING ART APPRECIATION, UNDERSTANDING AND RELEVANCE

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The purpose of this study was to explore the effectiveness of visual journals in improving art appreciation, understanding and relevance in high school photography students. The 39 participants were from a suburban high school in Central New York. Students were given a pre and post activity survey. The activity, based on Discipline Based Art Education (DBAE) methodology, required students to respond to a variety of activities regarding art production, history, aesthetics and criticism using a journal format. Data was also taken from verbal class critiques to help further determine the effectiveness of these journals. The results indicated that the activity a.) helped to improve student perceptions of art appreciation, understanding and to a lesser extent, relevance, and b.) broadened students' definition of art. The journals also unexpectedly served to aid the teacher in personalizing the classroom material based on student interests and needs revealed through the journals.

1. Introduction

As a teacher of Photography and Studio Art at the high school level, I have become increasingly concerned with students' lack of motivation and confidence in the classroom. From observations during class discussions and from literature concerning motivation in the art classroom, I found that low levels of motivation were often linked to students' perceptions towards art and its relevance in their lives (Gamble, 1999; Pavlou, 2006; Roberts, 2005). I also found that Discipline Based Art Education (DBAE) was a commonly used instructional method supported in many of the studies. It is also the structure used in the New York State Visual Arts standards. This method emphasizes the importance of teaching not only art production, but also art history, aesthetics and criticism, allowing students to work in the same manner as professional artists, providing them with a holistic and authentic art experience (Ireland, 1991).

The fact that students tend to have negative perceptions towards art and lack appreciation for the subject is not surprising. Although art and design skills are utilized to manufacture many of the products people use on a daily basis, society appears to place little value on the arts. Often, the arts are the first programs to be cut from school budgets. New York State is one of the few states requiring art teachers to be certified in the subject area; some states do not include art as a requirement in the K-12 education system at all.

Additionally, with the increasing amount of visual images in society, particularly through tools that students use on a regular basis such as digital cameras, camera phones, computers, Face Book, My Space, and television to mention a few, students need to be equipped to read and understand the messages these images are conveying and the effects they can have on the viewers.

As a result of this initial investigation, my concern shifted from low motivational levels to art appreciation and I became curious to learn if I could change student's perceptions towards art and

its relevance in their lives. Many art teachers emphasize the production aspect of DBAE and place little time or emphasis on appreciation, which involves criticism, aesthetics and to some extent, art history. Often times, particularly at the high school level, students are engaged in more demanding and time consuming projects, making it difficult for teachers to incorporate art appreciation activities into their lessons. I wanted to find a way to expose students to art and to react to it on a weekly basis, but in a way that would fit into the weekly schedule. I chose to incorporate a visual journal, similar to an artist's sketchbook, in which students would take notes, respond to artwork visually and verbally, and build a collection of images that inspires them. This is a common practice among many professional artists as they gather ideas and prepare to work on final pieces. Through this process of exposing students to various forms of art and asking them to respond through writing, creating, and discussing, I hoped to improve student appreciation, understanding and relevance of art. Therefore, the goal of this investigation was to answer the question: Does the use of visual journals help high school photography students improve perceptions of art appreciation, understanding and relevance?

2. Literature Review

In reviewing literature for this study, six themes emerged: 1. Art appreciation in education and society, 2. DBAE: the response to this lack of support, 3. Art appreciation and personal connections, 4. Reaching students through visual culture, 5. Observation and exposure to art, and 6. Journaling: a record of the artistic process.

2.1 Art appreciation in education and society

Fine arts programs have traditionally been treated as subjects of lesser importance, and often times, are the first to be cut from school budgets. In 1990, Gallup conducted a public opinion survey, which revealed that only 24% of those surveyed believed art to be "essential to education" (Ireland, 1991, p. 4). More recently, Gullatt (2007) found that while these attitudes towards the importance of the arts in education are beginning to shift in a positive direction, schools are still failing to support these programs in their budgets and found art education to be "lacking." Furthermore, the majority of parents believe that the level of art instruction currently taught in their children's schools is adequate, making it even more difficult for administration and school boards to push for more funding for the arts (Gullatt, 2007). Pavlou (2006) too found that parental and societal attitudes towards art affected student views towards art. If adults did not validate art as a worthy subject, then students were less likely to appreciate art, impeding learning as a result (Pavlou, 2006). The implications of this research reveals that administration and parents still do not fully understand, or appreciate, the benefits of arts education, resulting in students' lack of interest and engagement in the arts.

2.2 DBAE: The response to this lack of support

The Discipline Based Art Education model was the result of a study conducted by the Getty Center for Education in the Arts; the goal of which was to improve, generate respect and increase funding for art education (Ireland, 1991). This model is designed to create a holistic and authentic art experience for students by incorporating art production, art history, aesthetics and criticism into the

curriculum, allowing students to work in the same manner as professional artists (Ireland, 1991). One important component of DBAE is to replicate the environment of a professional working artist in the classroom (Gamble, 1999; Ireland, 1991; Roberts, 2005; Unsworth, 2001). Gamble (1999), Roberts (2005) and Unsworth (2001) emphasized the importance of allowing this authentic experience specifically in regards to understanding the process of creating art that professional artists employ. Students should find as much, if not more, enjoyment in the process of creating as they do in the final product. As students work on their projects, they learn to experiment, take risks, formulate and revise ideas and meanings, solve problems, critique and manipulate the materials (Gamble, 1999; Roberts, 2005). It is this process that students should come to understand and embrace. Teaching students to appreciate the process of art making rather than basing their success on the final product creates a more positive experience and helps them understand and connect to art in their own way.

2.3 Art appreciation and personal connections

Studies revealed that, in order for students to gain an appreciation for art they need to make a meaningful personal connection to the subject (Gamble, 1999; Danko-McGhee, 2006; Eckhoff, 2007; Pavlou 2006; Roberts 2005). While some of these studies were focused on student motivation in the classroom, they revealed a strong connection between creating personal connections and increasing student motivation (Gamble, 1999; Danko-McGhee, 2006; Eckhoff, 2007; Pavlou 2006; Roberts 2005). In general, they emphasized the importance for students to choose a subject matter and medium that they were interested in; something they were passionate about (Gamble, 1999; Danko-McGhee, 2006; Eckhoff, 2007; Pavlou 2006; Roberts 2005). Gamble's (1999), Danko-McGhee's (2006), Eckhoff's (2007), Pavlou's (2006) and Roberts' (2005) results emphasize the important role art appreciation has in the classroom and the effects it has on motivating and engaging students. Valuing and building a strong appreciation and understanding of art also helps students to see the relevance it has in their lives and gives them confidence to apply their knowledge outside of the classroom. Roberts (2005) highlighted the necessity of students making personal connections in order to learn.

Additionally, Pavlou (2006), through studying competence, motivation and engagement stressed the connection between low confidence/low engagement students and art appreciation: "Low confidence pupils enjoyed and valued art much less than high confidence pupils, they put less effort into their work, and did not expect to succeed" (Pavlou, 2006, p. 201). Therefore, students are more likely to learn and value what they learn when they are connected to it personally and can incorporate topics they are interested in and passionate about.

2.4 Reaching students through visual culture

Recently, visual culture (advertisements, fashion, architecture, movies, video games, Internet, etc.) has become a controversial topic in regards to its place in art education. With the recent proliferation of visual images resulting from technology, many are advocating for more curriculums based on visual culture, and less on traditional forms of art. While traditional forms of art are important and should be included in art education, teaching visual culture could be a powerful tool to help students connect personally to art. Additionally, with so many images in our society, it is important for our students to be able to read and interpret the messages conveyed through them. Students

must become alert to the visual images and culture surrounding them on a daily basis and be able to decode these images in order to better understand their culture and society (Efland, 2005). " . . . If we teachers try to ignore or demean the popular culture, if we insist on presenting serious art to students as the only respectable culture, our efforts will be received with blank looks or cries of irrelevance" (Efland, 2005, p.37). It is therefore important to study the aesthetics of everyday images and designs as well as the fine art in museums, in order to help our students create meaningful and personal connections to art, and understand its relevance in their lives.

2.5 Observation and exposure to art

Although visual images surround our society, students do not thoroughly observe and are rarely challenged to internalize it. Whether cultural images or fine art pieces in museums, students need to be exposed to and asked to observe and decode what they see. According to Danko-McGhee, "adults who encourage children to talk about art objects, who the artists are and how the objects are made, generates children's interest in making art and nurtures their art language development" (2006, p. 21). However, only a trivial amount of class time is actually spent viewing and discussing art (Eckhoff, 2007). This practice is necessary in order for aesthetic development to transpire (Danko-McGhee, 2006); however, this level of learning takes time and effort, entailing repeated exposure to works of art, including museums and other cultural centers if possible (Danko-McGhee, 2006).

2.6 Journaling: A record of the artistic process

Roberts (2005) argues that students will not experience personal relevance without "engaging in the same types of activities as real artists" (p. 43). She also articulates the importance of reflection during and after a project's completion (Roberts, 2005). Gamble (1999) emphasized the importance of "the journey" or the process of creating art. Many of these activities take place in an artist's journal or sketchbook, which are a written and visual recording of an artist's "journey." Todorovich (2002) also found the use of journals in the visual arts setting as an effective learning tool. Based on student attitudes and reflections, understanding of art grew through the use of the journals (Todorovich, 2007).

In conclusion, journals are a way in which students can organize their experiences and interactions with art and to make it personal to them, helping them to strengthen their appreciation and understanding of art. Journals encompass DBAE methods, are a means in which students can explore their interests in relation to art, reflect on their exposure to fine art as well as visual culture, critique their own work, and reinforce their understanding of the process and techniques of photography. As there was limited research on the use of visual journals or sketchbooks in visual art classrooms, particularly in regards to art appreciation, the purpose of this study was to determine the effectiveness of visual journals in improving student perceptions of art appreciation, understanding and relevance, particular to high school photography students.

3. Methodology

3.1 Sample population

The individuals participating in this study were 39 high school Photography I students ranging from

ninth through twelfth grade. All of the participants involved in this study have had a background in art starting in Kindergarten and have had at least Studio Art I; some students have taken Advanced Studio Art and are enrolled in AP Studio Art as well. Consequently, age, ability and experience levels differed. Of the 39 participants in the four Photography I classes, 12 were males and 27 were females. Numbers of students in each grade level included eight freshmen, twenty sophomores, eight juniors and three seniors. While there were higher percentages of females and sophomores, as well as a variety of ability levels, the population was still representative of Photography I classes in previous years.

Based on the initial questionnaire, student interest in photography ranged from some who were "interested in photography as a career," to the majority who were simply "interested in photography and wanted to learn more about it." These students are also highly motivated to earn good grades. They will ask what they can do to "get a better grade" or if they can do extra credit. The majority of them are "plugged in" to electronics, particularly their cell phones and MP3 Players/ iPods. Surprisingly, two highly motivated students have consistently stated that they do not watch television, and therefore had difficulty with one of the assignments. Since a sample of convenience was used, it is important to regard any generalizations with caution, thereby posing a limitation in this study.

3.2 Context

Participants in this study were from a suburban, predominately Caucasian, middle to upper-middle class district in Onondaga County. According to the 2006-2007 New York State School Report Card, 98% of the student population is Caucasian, 91% of the graduates continued their education at either a two or four year college, and 11% of the students are eligible for free or reduced school lunches. The district is comprised of one elementary school, one middle school and one high school, with all the schools located on a central campus.

3.3 Instrumentation

a.) Survey: A pre and post activity survey was given to the students. The survey consisted of two parts. The first part asked basic context questions in order to understand the students' reasons for choosing the class, level of art experience and their personal definition of art. The second part of the survey consisted of 15 Likert response questions ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). These questions assessed: students' perceptions towards art appreciation and understanding and students' perceptions towards the relevance of the classroom material to their own lives. The post activity survey included a third part, consisting of three open-ended questions regarding the effectiveness of the journals. The data collected from the initial survey served as a base to compare any changes in student perceptions after using the journals. The concluding survey was used to reveal any changes in student perceptions as compared to the initial survey and in relation to any changes documented through the journals and critiques.

b.) Observations of art critique: I conducted a pre and post activity critique. I collected data from these critiques using a chart, with the following criteria: Little or No Response, Literal Response, Personal Response, Interpretive Response, Social/Cultural Connections and Technical Connections. The chart defined the attributes for each criterion. Any time a student made a comment, I placed a tally in the appropriate column. Any students who did not respond, or only responded visually or

with one word were grouped in the Little or No Response category. This information from the pre-activity critique served as a baseline which I used to compare with the data from the final critique in order to see if there was any improvement in appreciation, understanding and relevance for my students after the visual journal activity.

I decided to collect my data for the critique over a two-day period. I did this for several reasons. First, we needed more time to complete the critiques and second, some students were absent the first day we critiqued and therefore were not included in the data collection. I felt that it was important to include all my students in order to obtain the most accurate reflection of these discussions. The best solution for me, therefore, was to average the two days of critiquing. I felt this was the best representation I could get as it gave an overall view of how discussion went over the course of two classes. It also helped to balance out factors such as the day of the week. For example, one of the critique days occurred on a Monday. Students that day were tired and quieter than they normally would be, particularly my morning classes. On the other hand, factors such as absences, student moods, time of the year, day or week are also a normal part of the school and classroom dynamics. These are uncontrollable factors and do represent a realistic environment. Observing two days of critiques and combining my observations gave me the most accurate data I could obtain.

The critique included student work as well as work from famous artists. Students took turns sharing their photographs with the rest of the class, commenting on what they were pleased with and what they would like to improve on as well as any other comments or thoughts they had about their work. All students were required to participate in this process of sharing and discussing their photographs. The rest of the class then provided feedback to the student, commenting on things they liked and why, suggestions for improvement, and any other thoughts they had about the piece. We critiqued the photos from famous photographers on the following day; however, in my larger classes I did need to spend some of that time critiquing the student work that we did not have time to critique on the first day, before discussing the works from famous photographers. In critiquing the work from famous photographers, I asked students to comment on things they liked or disliked about the piece, technique, meaning, as well as any questions they had about the piece.

My role in these critiquing sessions was to guide the discussion, not to influence the thoughts and ideas of the students. I reminded students that they were beginning with comments regarding what they were pleased with, would like to work on and any other thoughts they had such as how or why they took the photo. Occasionally I did ask students to clarify or explain themselves further. I also began the self critiques with approximately 5 minutes for students to write some of their thoughts in their journals on the photos they would be critiquing, using the same discussion questions, in order to help them organize their thoughts and prepare them to share with the class.

Towards the end of the study, after the journaling activities, I held a concluding class critique. This was the same format as the initial critique. Again, I collected data over a two day time period and we discussed their own photographs as well as photographs from famous photographers.

Finally, I made further observations during the course of the study, noting students' attitudes towards the journals and any comments they made about their photographs as well as photographs, artwork and visual images they saw outside class. I recorded these comments in my notes.

c.) Journals: I assigned three sets of journal assignments throughout the course of the study. These assignments were given over a time period of usually one to two weeks. Journal questions covered the four aspects of DBAE: art production, criticism, history, and aesthetics. Some questions asked students to respond in written form, others in visual form by incorporating photographs and

drawings in their response. Most of the journal assignments were designed to be completed in class, sometimes as a class during a specified time and sometimes to complete during class as they had time individually. Occasionally, students were assigned a question to be completed at home. The questions were typed out on an assignment sheet and handed out to students. A due date was also included on the assignment sheet. We did discuss some of the entries as a class before students worked on them in order to clarify the assignment, and after, to share with the class what students had learned.

Journals were graded using a rubric and returned to students with comments indicating what students did well on and how they could improve. Due to the nature of the journals, I found it easier to give a rating for students on a scale of 1-4; 1 being limited/literal responses and 4 being in depth responses in which students made personal, interpretive, social/cultural responses, and technical connections when appropriate and with accuracy. I used this method because the journal entries asked for different types of information. Not all entries for example, asked students to make an interpretation or personal connection. This 1-4 scale allowed me to give an overall rating as to the quality and level of their work and in the end, was a more accurate and understandable reflection of their progress. I used this data to determine if there were any changes in the quality of the entries from the first to the last journal. I also used the data from the journals to compare with the data from the critiques and surveys.

3.4 Procedure

I began the study by requesting permission from the University's Human Subject Committee. A letter was also sent to the principal and superintendent of the participating school district explaining the goals of the study, as well as a brief description of the research design and a copy of the proposal. After it was approved by the Board of Education and the Campus Human Subject Committee, letters were sent home to the students and their parents via mail. Any parents who did not consent to their child being included in the study were asked to contact the researcher or the principal of the school. This letter was also shared in class with the students and students were asked to sign the letter if they did not wish to participate. All parents and students granted permission. Once I had permission to begin my study from administration, parents and students, I began data collection by asking students to fill out the initial survey.

Next I collected data based on observations of my students during an initial class critique. I was interested to see if they could make connections beyond a literal level such as interpreting the work and making personal and social connections to the pieces they were discussing. I was also observing the extent to which students were incorporating the material they were learning in class in these initial critiques.

After my initial class critique, I began the journal assignments. Students were given journal assignments over a period of five weeks. The assignments were divided into three assignment periods for grading purposes. The purpose of the journal assignments was to reinforce information students were learning in class and to expose them to art through examples in both their visual culture and fine art. After the final journal assignment, I had students participate in a post-activity critique. I concluded my research with a final survey, consisting of the same questions as the initial survey, but with three open-ended questions.

I maintained confidentiality throughout the extent of the study. Participants answered the questionnaires anonymously and placed their questionnaires in an envelope when they were

finished. No particular participants were identified in data collection from the class critiques or from data gathered from the journals. All data collected from students, including questionnaires, class observation notes, and any quotes recorded from visual journals were shredded.

4. Data Analysis

Data was analyzed using Excel computer program, to show changes between the beginning and the end of the study. The data from the questionnaire was divided into different topics: 1.) Basic Information: students perspective and experience in art, 2.) Student definitions of art, 3.) Perceptions of art appreciation and understanding, 4.) Perceptions of relevance, and 5.) Open-ended responses regarding the effectiveness of the journals (concluding survey only). The Likert scale questions were shown in a bar graph for each response option: Strongly Disagree (1), Disagree (2), Agree (3), and Strongly Agree (4). Results were also displayed in a pie chart based on combined responses: Strongly Disagree/Disagree (1-2.5) and Agree/Strongly Agree (3-4) to determine any shifts between perceptions of general disagreement and agreement. Answers of "Agree/Strongly Agree" indicates that students' perceive art to be important to themselves and society; they see the effects art can have on our culture and beliefs. It also indicates that students perceive the connections between the content in class and their personal photography as well as how it relates to situations outside of school. Answers of "Disagree/Strongly Disagree" indicates that students percieve art as being separate from their lives, has little influence on themselves or on our culutre, indicates that students have difficulty understanding how the content of the class relates to them personally.

Data from the critiques was coded and graphed in Excel based on the following categories: No Responses, Literal Responses, Interpretive Responses, Personal Responses, Social/Cultural Responses and Technical Responses. Each time a student responded during the critique, a tally mark was placed in the column corresponding to the type of response. The chart was used to organize the data. The total number of responses for each category was tallied and displayed in a bar graph format.

A rating of 1 indicated a limited response with few to no personal, interpretive, technical, social or cultural connections. A rating of 4 indicated a sophisticated response in which the student demonstrated a strong understanding of the assignment and any connections that could be made beyond a literal level. These responses made personal, interpretive, technical, social and cultural connections when appropriate and explained them. A rating of 0 indicates no response. The total number of responses for each depth category were tallied and displayed in bar graph format.

5. Findings

The purpose of this research was to determine the effectiveness visual journals have in improving art appreciation, understanding and relevance in high school photography students. In order to determine if there was a change in student perceptions, I needed to establish students' initial perceptions regarding art. This data was gathered through the initial survey. The most significant finding was from the open-ended responses in the concluding survey.

When students were asked, "*Do you think the visual journals helped you to have a better understanding for the ways in which art affects your daily life?"* 67% responded "Yes," while 33%

replied "No" (Fig. 1). When asked, *"Did the journals help you to look more carefully at the visual images around you and to understand the messages these images communicate?"* 51% answered "Yes," while 49% answered "No" (Fig. 2). When asked the final question, *"Overall, do you think the journals helped you to appreciate and learn more about art/photography? Did any particular assignment help more than others? If so, which ones helped and which did not?"* 67% of the students responded with "Yes," while 33% replied "No" (Fig. 3). In conclusion, a little over half of the students indicated that they believed the journals were helpful in nurturing their appreciation for art.

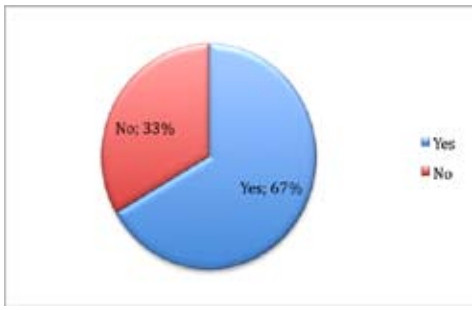

Fig. 1. Student Responses to Question 1 on the Effectiveness of Visual Journals

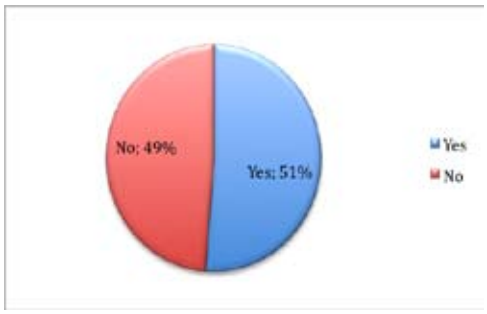

Fig. 2. Student Responses to Question 2 on the Effectiveness of Visual Journals

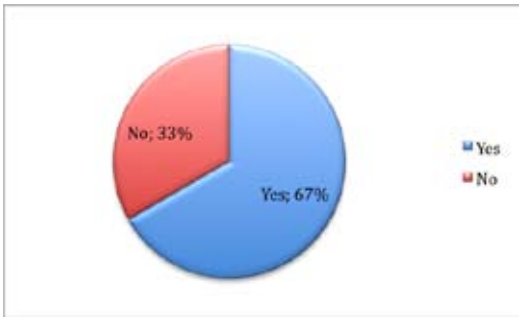

Fig. 3. Student Responses to Question 3 on the Effectiveness of Visual Journals

Overall, this indicates that the majority of the students perceived the journals to be helpful in increasing their appreciation for art and its relevance in their lives. Additionally, students indicated that they learned the most from activities involving visual images, both in looking at visual images

and responding to them, and to a greater extent, activities involving visual responses that incorporate images into their answer. They did not enjoy the questions asking them to explain the technical lessons they learned in class. Tables 1, 2 and 3 provide student insight on the effectiveness of these activities as well as the journals in general.

Table 1. Student responses to question 1: Do you think the visual journals helped you to have a better understanding for the ways in which art affects your daily life? Explain.

Positive Responses (Yes)	Negative Responses (No)
○ "Yes. It exposed me to the art I see in everyday life, and made me see it as art." ○ "Yes. I had to think about how art affects my daily life." ○ "Yes. It helped me memorize the stuff I learned." ○ "Yes. It showed me how photos could be used to convey an emotion or message." ○ "Yes, because we got to see things that artists portray daily." ○ "Yes because I never really looked for photography outside of school. I saw photography but didn't really recognize it." ○ "They helped somewhat because I thought about certain things and had to look things up but I could have easily learned the same things without journal entries." ○ "Yes. I really like the visual journal because they are hands on and way better than writing."	○ "No. I think the journals make things more difficult." ○ "Not really. I don't think they are that personal." ○ "No, they help to make sure you understand what you are learning." ○ No, I already knew how art influences our decisions slightly." ○ "No, because I think they're boring."

Table 2. Student responses to question 2: Did the journals help you to look more carefully at the visual images around you and to understand the messages these images communicate? If so, in what ways?

Positive Responses (Yes)	Negative Responses (No)
○ "Sometimes I'll look more closely at a picture than just passing by." ○ "I pay more attention and started looking for art around more in my everyday life." ○ "Ads are easier to understand." ○ "I kind of understand better now why advertisements or tv shows show things the way they do. For example, a smiling person has a different effect than a frowning person." ○ "I do pay more attention to commercials and ads to see how/what they are using to get you to buy the product." ○ "I look at fashion pictures and try to see which emotions the pictures exhibit." "It doesn't help more, but it does help. It changes things up so your not always working on the same project."	○ "No. I know it, but I don't care to use it." ○ "No not really."

Table 3: Student responses to question 3: Overall, do you think the journals helped you to appreciate and learn more about art/photography? Did any particular assignment help more than others? If so, which ones helped and which did not?

Positive Responses (Yes)	**Negative Responses (No)**
○ "I've think the diaries helped a little, but I've always appreciated art in my own way." ○ "The visual art assingment in which we had to find themes was my favorite. It has to do with really looking at a photograph (color, material, subject) and analyzing it." ○ "Yes. The one about tv ads made me realize there is art in almost everything." ○ "Yes. The advertising one we did." ○ "Yes, because I can see how a picture portrays a message." ○ "I liked the one when we went on the internet and read about digitally changing photos. I've never really thought about it with certain pictures." ○ "Yes, the one about the presidents campaign helped a lot. I didn't even think that those had anyting to do with art until the project." ○ "The journals where we learned how different things were done made me appreciate art more and learn more about art and photography." ○ "Overall, the visual diaries have helped me to appreciate photography more. The visual diary that delt with the feelings has stuck in my mind."	○ "No, not exactly. I don't think they helped much with anything." ○ "No. I didn't look at the photography any differently than I did before." ○ "Nope. I apologize." ○ "Not really." ○ "No. I didn't like them."

Another significant finding from my research was that there was a slight increase in the number of students who included more forms of art in their definition of art. Students were given a list of various media and artistic processes and asked to place a mark next to the ones they considered to be art. Fig. 1 shows the change in students' perceptions between the initial and concluding responses.

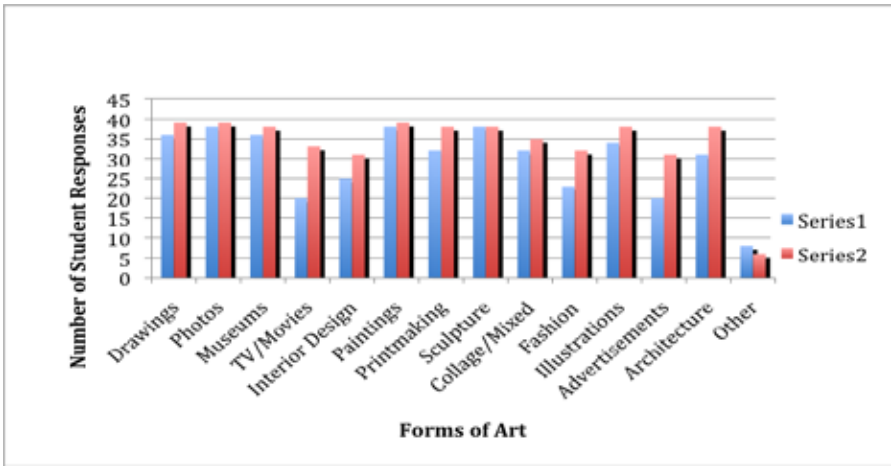

Fig. 4. Students' Initial and Concluding Definition of Art

In addition to the choices listed, students who indicated "other" also identified the following as forms of art: "graphitti; music," "anything designed and created," "tattoos," "all are forms of art," "if someone means it to be art then it is art," "Jewelry, EVERYthing," "text arrangements/layouts of magazines, etc.," and "backgrounds in plays, movies, tv shows." Overall, there was an increase in the number of students who included more forms of art in their definition. Additionally, there was an increase in the number of students including a particular form for each of the 13 forms listed. Students expanded their definition of art and recognized non-traditional forms of art as part of this definition.

Students also reflected a better understanding and appreciation for art in their Likert responses, although less dramatically than in the open ended responses. There were two types of questions in this part of the survey: perceptions of art appreciation and understanding and perceptions of relevance. Based on the results of the initial and concluding surveys, students reflected a better understanding and appreciation for art. There was a 3% increase in the number of strongly agree/ agree responses from the appreciation and understanding questions (Figs. 5 and 6) and a 1% increase in the number of responses from the classroom relevance questions (Figs. 7 and 8).

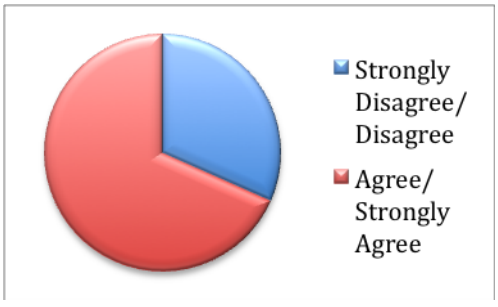

Fig. 5. Initial Survey: Art Appreciation & Understanding

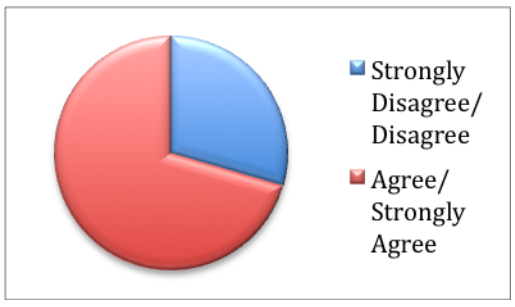

Fig. 6. Concluding Survey: Art Appreciation & Understanding

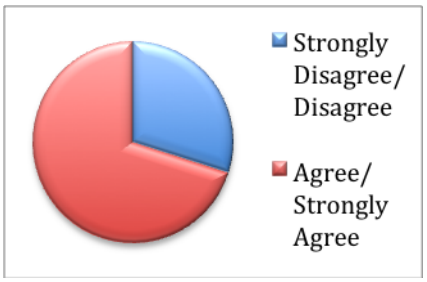

Fig. 7. Initial Survey: Classroom Relevance

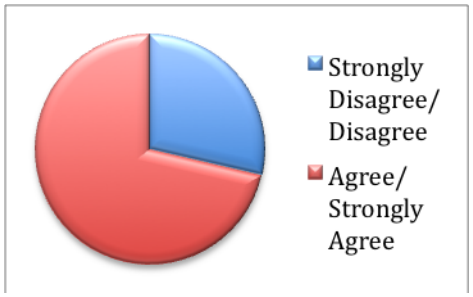

Fig. 8. Concluding Survey: Classroom Relevance

While there were no dramatic changes in student's perceptions from the larger categories of "Strongly Disagree/Disagree" to "Agree/Strongly Agree," there was a shift between the four sub-categories: "Strongly Disagree," "Disagree," "Agree," and "Strongly Agree." While there was only a 3% and 1% increase in students strongly agreeing/agreeing that art is important and relevant, there were bigger shifts within the smaller categories. As indicated in Fig. 9, 16 students indicated "strongly disagree" to the art appreciation and understanding questions compared to 9 students in the concluding survey; 91 students indicated "agree" on the initial survey compared to 98 on the concluding survey and 61 students initially indicated "strongly agree" compared to 66 students on the concluding survey.

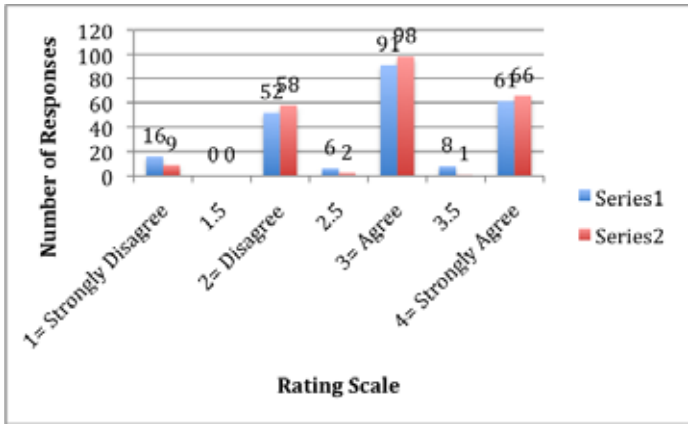

Fig. 9. Initial and Concluding Survey: Art Appreciation and Understanding

With the questions regarding classroom relevance, 14 students initially indicated that they strongly disagreed with the statements, compared to 8 in the concluding survey; 48 "disagreed" compared to 51 in the concluding survey, 91 initially agreed compared to 93 and 67 indicated they strongly agreed compared to 73 in the concluding survey. This indicates overall, there was at least a small improvement from students who had lower perceptions of art appreciation, understanding and relevance to having higher perceptions.

The data from the visual journals revealed that there was an improvement in the quality of students' responses. Fig. 11 shows that there was a decrease in journals receiving a rank of 0-2.5 and an increase in the number of journals receiving a rank of 3, 3.5 and 4.

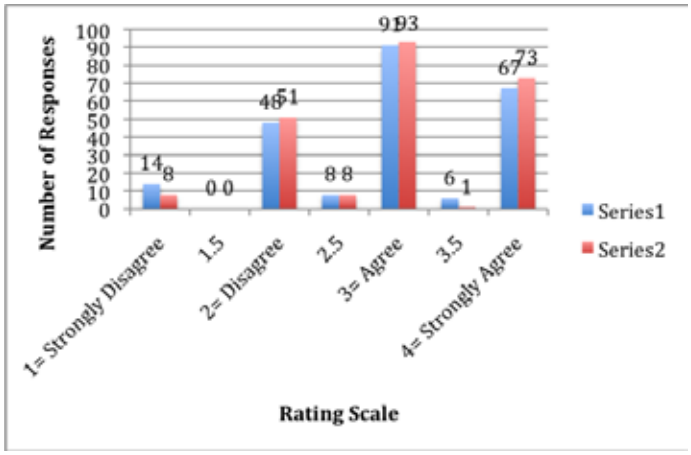

Fig. 10. Initial and Concluding Survey: Classroom Relevance

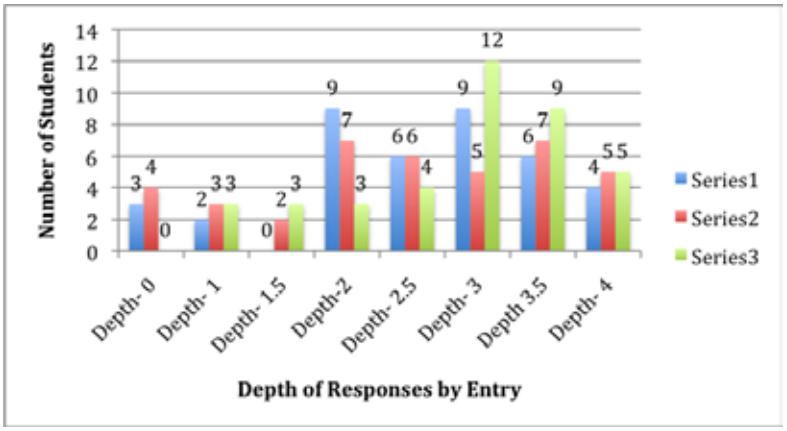

Fig. 11. Journal Entries 1, 2 and 3

In comparison, the results from the data for the critiques was somewhat mixed. Generally, there were increases in the number of literal, personal and technical responses; however, there were more students who did not engage in discussion during the second critique (Fig. 12). There were also fewer interpretive responses.

In conclusion, the most significant finding was that over half of the students indicated on their surveys that the journals were effective in improving art appreciation and understanding. Data from the Likert questions, journals and critiques supports these findings to a lesser extent. Furthermore, students had also broadeded their definition of art by the end of the experiment. Students indicated that they were most engaged in the “visual” aspect of the journals- activities that involved visual images in either the question, answer or both, based on their comments on the concluding survey and observations in the classroom. This study also revealed that there was less improvement in perceptions of classroom relevance, based on the data from the survey, journals and critiques.

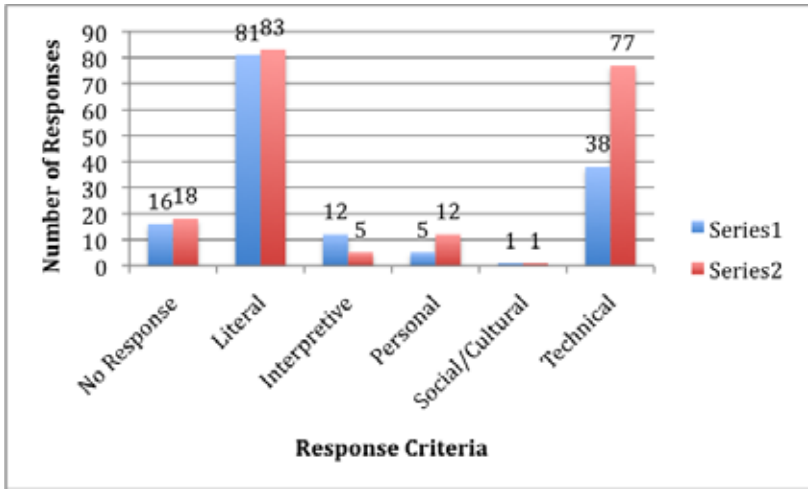

Fig. 12. Initial and Concluding Critiques

6. Discussion and Interpretation

6.1 Summary

I was able to make several conclusions from the data I collected. Overall, based on the data from the survey, the content in the journals, and my observations from class critiques and discussions, I found that the journals appeared to have a positive effect on increasing student perceptions of art appreciation and relevance, and therefore, I do plan to continue using the journals in my class. There were slight improvements in the Likert responses, between the initial and concluding survey, improvements in the quality of the journal entries from the first journal to the last, and some improvements in class discussions; however, the most significant finding was from the open-ended responses in the concluding survey.

6.2 Discussion

Originally, I was going to use the extended questions from the concluding survey in a focus group setting; however, due to conflicting schedules and meetings, I was unable to do so. I decided to have students answer the questions on the survey instead. Overall, responses to the extended questions indicated that the majority of the students perceived the journals to be helpful in increasing their appreciation for art and its relevance in their lives. Exposing students to images they see on a daily basis and asking them to look at these visuals as art, identifying design qualities and interpreting their purpose helped students to recognize these images as part of an artistic process. The difference in the number of "Yes" responses for the second question could indicate that, while they have a better understanding and appreciation for art (questions 2 and 3), they may not apply their knowledge, as one student stated in response to the second question: "No. I know it but I don't care to use it."

Although there may not have been a tremendous improvement in student perceptions of art appreciation, based on the Likert questions, there were slight shifts indicating some improvement. Exposing students to forms of art in their environment helped to increase art awareness, but to fully

develop a meaningful connection to art takes time. It is a growth process that continues, for artist and student alike, throughout a lifetime. Had this research been conducted over a longer span of time, I would expect the results would have been more dramatic.

The research also indicated that, while students gained an appreciation for art, they had more difficulty applying it to their lives. There was a smaller change in perceptions about classroom relevance, compared to the change in perceptions about appreciation and understanding. The open-ended questions also indicated that students learned to appreciate and understand art more, but fewer were able to or chose not to apply it.

Additionally, there was an increase in the number of students who included more forms of art in their definition of art. Traditionally, art has been identified as "fine art" found in museums; rarely are popular cultural images or mass-produced commercial products considered art. When asked in the concluding survey what their definition of art included, students chose more forms of art from the list, including forms that encompass things that they interact with on a daily basis. Although seemingly trivial, it does have significant implications. First, recognizing these alternative processes as forms of art helps our students recognize the connection between art and their culture. This makes it easier for them to make a personal connection to art through the commercial products of their culture, as opposed to connecting to art through the "untouchable" works in the museums (Efland, 2005). Also, identifying popular cultural images and mass-produced commercial products as valid forms of art helps students to validate their own culture to which they are so connected, helping them to realize that the art they are interested in and relate to is important. This concurs with Pavlou's (2006) study in which she emphasized the connection between the degree that students value art and their level of motivation and participation in art, my initial concern prompting this research.

The improvement in the quality of the journal entries could be the result of several factors. First, students with a lower rank received lower grades. They could have been motivated to improve their responses to avoid earning a low grade. Second, students were also shown how they could improve their responses. As journals were graded, students had a better idea of what they were supposed to do and how in-depth they were expected to be. Additionally, by the last journal, students had participated in the process of analyzing art over a longer period of time, compared to the first journal assignment. Practicing and analyzing art repeatedly, likely helped students to improve their responses.

It is important to also note how the students responded to the different types of journal questions. Students were less enthusiastic about the production questions, questions asking students to review the techniques they learned in class. However, knowledge about these techniques helped students to discuss and critique the visual images. Overall, students were most enthusiastic and put the most effort into the journal entries that related directly to visual images, especially those that involved answering the question visually rather than in written form. They indicated this in both the open-ended questions from the survey as well as in the quality of their journal responses. Students indicated that they remembered these visual activities and the lessons they learned from them, indicating that these types of questions were more effective in cultivating art appreciation. They were also more likely to discuss these questions casually during class.

There was an unintended outcome from the journals. Reading the journals helped me to have a better understanding of each student's level of understanding, not only in regards to art appreciation, but of their technical knowledge as well. This helped me to have a better idea of what concepts I

needed to reinforce. It also helped me to learn more about their individual visual preferences. This allowed me to connect to them and guide them to images and ideas that were more personally relevant to them.

The data gathered from the critiques was mixed. Generally, there were increases in the number of literal, personal and technical responses. I expected this to occur, as students had been exposed to more artwork and had learned more technical information by the second critique, giving them more of a foundation to draw from during discussions. I was surprised that there were more students who did not give a verbal response during the second critique. There could be a variety of factors influencing this decrease. One of the critiques was on a Monday, when many of my students, particularly in my morning classes, tend to be quieter. Another factor could be that the images we were discussing may not have been as interesting to them. There were also fewer interpretive responses. I was expecting to see an increase in this type of response since I had been asking students to provide interpretive responses to art in their journals. Again, this discrepancy may have been from the types of images we discussed. Some images are easier to interpret than others while some are not meant to convey a message at all.

The data from the critiques could have been influenced by several other factors as well. First, the initial critiques were held at the beginning of the school year, before students had time to build a rapport with their peers, as well as myself. This social barrier could have caused students to feel uncomfortable contributing to the discussions. While some students may have had comments to share, they may not have felt comfortable speaking out, and held their thoughts back as a result. Additionally, personal issues that students may have had (unrelated to school or the class), could also have affected their levels of participation.

6.3 Limitations

While the results of this study indicated a positive change in students' perceptions towards art appreciation, there were several limitations. First, this study was based on a small sampling from one school with the same teacher. Other students from different demographics may respond to the journals differently, particularly students who have different backgrounds in art. Additionally, this study occurred over a six-week time span. There were many disruptions within that period as well, due to vacation days, snow days, field trips, and teacher workshop days. Developing an understanding and appreciation for art is not like learning facts in a textbook. Learning to appreciate, understand and connect personally to any subject is a growth process involving higher level thinking skills, which need more time to develop. While there were positive changes in student attitudes, the results might be more compelling if given more time. Further research could be conducted over a longer period of time to determine if the students' perceptions change more significantly. It would be interesting to continue with the journals throughout the remainder of the school year, give students an end of the year survey and critique and compare the results.

6.4 Implications

Overall, the journals were helpful in increasing art appreciation and understanding in students, although more could be done to help students apply their knowledge both in and out of the classroom. Creating opportunities to expose students to forms of art and asking students to analyze theses visual images, whether through journaling or discussion, helped the students to recognize

commonplace images and products as part of the artistic process and increase awareness for the abundant and diverse forms of art in society. It is, however, more difficult to help them see the relevance it has to their lives and to apply it. Additionally, in regards to the results of relevance and application, it may not be about the *ability* to apply art and identify the relevance but *choosing* to apply it.

Additionally the journal activities helped students to broaden their definition of art to include not only museum pieces created by traditional media, but alternate forms of art processes as well. This implies that more students recognize commercial, mass produced products and every day visual images as products of an artistic process. Examples of these include clothing, textiles, newspaper/magazine/internet/television advertisements, video game design, movies, television shows, posters, etc. as products of an artistic process in which design principles were used. Recognizing products that they interact with on a daily basis as products of art helps students to: a.) make a more personal connection to art by experiencing it at their level (meet them where they are); b.) see the importance of art on their society—they use and interact with these products on a daily basis and would miss these products if they did not have them; c.) recognize the impact visual images have on their lives, particularly how images influence them to believe or feel a certain way and convinces them to do something; and d.) accept the products of their culture as valuable and legitimate forms of art. The result is that they begin to develop a greater value and appreciation for art, place more value on learning about it and recognize how it directly relates to them personally.

Furthermore, activities involving visual elements (the internet, magazines, television) and requiring a visual response as opposed to a written response were the most effective strategies used in the journals to develop appreciation and understanding. Activities such as designing a poster for travel, a musician, a movie, etc., using color to express emotions, creating an ad for or against a political candidate, and using a photograph to represent a series of song lyrics are all examples involving a visual response requiring students to analyze and interpret visual images and relate art to their daily culture.

This research has significant implications when studied in relation to previous research. Students learn to value and make a personal connection to art through things that are familiar to them and that they are passionate about (Gamble, 1999), (Pavlou, 2006), (Roberts, 2005). Furthermore, students need to make these personal connections in order to learn (Roberts, 2005). Pavlou (2006) also emphasized the correlation between the value a student places on art with the student's level of motivation, confidence and engagement in art. Increasing my students' connection to and appreciation for art could also improve motivation, confidence and engagement. It would be interesting to conduct further studies to find out if this idea proved to be true in my classroom.

Lastly, one could ask if the findings of this study are a reflection on the attitudes in our society and from other art teachers. Society does not value art. As noted earlier in my research, art is always one of the first subjects to be cut from a program; some states do not even require students to take it, or to have certified teachers teach the subject. Additionally, parents are not usually concerned with how their child is doing in the class and do not typically encourage their children to pursue a career in art, even though there are many careers available in the field that also provide a decent salary. Furthermore, art teachers often do not spend much time on art appreciation in comparison to the time they spend on art production. Student's difficulty in understanding, appreciating, relating to art and applying art skills outside of the classroom could be a reflection on social values and teachers'

priorities: what they are, or are not, teaching in class. Teachers need to expose their students to various forms of art, discuss aesthetics, critique art work, and be knowledgeable of processes and history in order for students to grow in their appreciation and understanding of art.

6.5 Recommendations further study

Several questions arose through the course of this investigation that should be studied further. First, were the improvements a result of the journaling process or simply due to the exposure students were receiving through the activities? Furthermore, would the results be the same or different if another method of teaching visual literacy and appreciation was used? The issue may lie in the curriculum being taught, rather than the method of teaching it. As discussed earlier, student perceptions of art appreciation, understanding and relevance may be a reflection of teacher attitudes and what material is being taught in the classroom. Additionally, while visual journals and sketchbooks are a common tool for learning and growing as an artist, for both professional and amateurs, there may be other methods of teaching art appreciation that are just as effective.

Another factor to consider is student experience. The students in this study all had previous experience in art, beginning in Kindergarten and continuing through high school. They all had at least a foundational studio class, and two were taking Advanced Placement (AP) art. It would be interesting to try this with a group of students who have had no or very little experience in art; would the results be the same?

It would also be interesting to continue using the journals through the remainder of the school year and conclude with a final survey and the end of the year. This would help to determine if the journals are truly effective and reveal the extent to which time played a role in their effectiveness. Learning to appreciate art, find relevance in it and apply it to their lives takes time. It is not simply information that is read and memorized, but requires the higher order thinking skills of analyzing, synthesizing, and evaluating.

Lastly, Pavlou's study indicated that students who have a strong understanding of art and its value have higher levels of motivation, more confidence and are more engaged in their projects (2006). More research could be conducted to determine whether the growth in art appreciation helps to increase confidence, motivation and engagement. Furthermore, is the relationship Pavlou (2006) describes between valuing art and motivation, confidence and engagement stemming from student attitudes or is it at times, as Gamble (1999) discussed, related more to a lack of ideas and inspiration? Are students going to be more engaged because they value and understand art, or because they have more ideas from looking at other pieces of art and making personal connections? Basically, are motivation, confidence and engagement more related to a student's collection of ideas and inspiration (or lack thereof) or from the value they place on art (art appreciation and understanding)? In what ways does exposure to art help improve art appreciation and understanding as well as to provide inspiration and ideas, both of which could help to motivate and engage students? Roberts (2005) and Gamble (1999) also discuss the importance of incorporating things students are passionate about into their art. Do the journals help to direct students' ideas and development to incorporate their interests into the art and does this help them to see the relevance art has in their lives? These are undoubtedly questions that could be studied further in order to better understand how students gain an appreciation and understanding for art, experience the relevance it has in their lives and enrich the learning process and growth as an artist.

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THE PUBLIC EDUCATOR'S REACTION TO THE GROWING TREND OF HOMESCHOOLING

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Homeschooling is a real issue that is affecting public schools and public educators. According to the United States Department of Education, 1.5 million students were homeschooled in 2007, a number that continues to increase. The purpose of my research was to investigate the reasons why some parents choose to homeschool their school age children and what the public educator's reaction should be to this growing trend. The instrument that I used to conduct my research was interviews. My sample consisted of three parents who homeschool or have homeschooled their children, three teachers who have taught homeschooled students, and three students who were homeschooled. The focus of my questions was on the motivations of parents to homeschool and the affect that this choice is having on students and public schools. The results indicated the primary motivator to homeschool was to provide religious or moral instruction and teachers felt that the public schools in general, should be more adequately prepared to assimilate formerly homeschooled students into their classrooms.

"If those of us who are deeply concerned about teacher education continue to ignore homeschooling and its ongoing redefinition of what counts as a good teacher and a good curriculum, I fear that by the time we take this question seriously we shall be confronting a very different and distressing reality." (Apple, 2007, p. 128)

1. Background

1.1 *Identifying the problem; creating a purpose*

Homeschooling is a serious issue that is affecting our children, public schools, and educators through a steady disintegration of what we assume to be the standard institution for education in our country. According to the most recent survey conducted by the U.S. Department of Education, National Center for Education Statistics (NCES) an estimated 1.5 million students (1,508,000) were homeschooled in the United States in the spring of 2007. This represents an increase from the estimated 1.1 million students who were homeschooled in spring of 2003 (USED, 2008). Other sources confirm the increases in the number of students being homeschooled and some estimate that with a growth rate of "nearly seven percent annually" the number may reach "three million by the year 2010" (Jones and Gloeckner, 2004, p.17). As Michael Apple astutely points out, questions need to be asked about what qualifies a teacher as a 'teacher' and what is good curriculum that will create the results that we expect from our country's educational system (2007).

Being a certified teacher in the areas of Childhood Education (1-6), Students with Disabilities (1-6), as well as English Language Arts (7-12) and as a product of home schooling education

from sixth through twelfth grade, I feel justified in voicing my concerns regarding the legitimacy of parents as 'teachers' in the homeschool setting and the quality of the curriculum being taught by homeschool parents. Apple (2007) refers to homeschooling as a "redefinition" of schooling, as we have traditionally known it, throughout this country. Schooling is constantly changing to adapt to the growing of culture, ideologies, and perspectives on education, and it should never remain static, yet, I do not agree with this 'redefinition' of teachers as parents rather than certified and college educated professionals. As I began my research for my graduate work in education I thought it was best to go to the source of the homeschooling factor; I sought to uncover the impacts that homeschooling has on students, the motivations parents have as they make the decision to homeschool their children, as well as teachers' reactions and experiences with homeschooled students.

I believe that the primary question surrounding homeschooling is that of democracy within education. The compulsory attendance education laws enacted first in 1853 by Horace Mann and made nationwide by 1918, mandated that education begin, by state, at a designated age and be a traditional law that every child in the United States will receive an education beginning in elementary and continuing through secondary (National Conference of State Legislators, 2009). Although this was primarily enacted because of the abuses that were being perpetuated through child labor, many saw this law as a violation of one's democratic rights because the law demanded that children be educated; it no longer became a voluntary action based on parental values or preferences. This issue of democracy related to education is one that affects homeschooling dramatically. Throughout history parents have chosen to homeschool their children but since the compulsory education laws, the number of homeschooling families had decreased. It has only been in the last several decades that such an increase in the number of homeschooled children has occurred, "increasing annually by 15 to 20 percent" (McReynolds, 2007, p.38). Many of these parents cite several reasons for why they choose to homeschool their children, but legally, they assert that it is their democratic right to educate their children as they choose, though there are primary motivators for these assertions one of which is religion (McReynolds, 2007).

As a homeschooled student who had to struggle with academics, socialization, and identity realization as a result of my *parent's* 'democratic' choice for my education, I believe such rights for education should be exercised within limits primarily because of the lack of qualifications that the majority of parents who homeschool have. Teaching is not something that everyone is able to do, and especially not effectively across all grade levels- from elementary through secondary. The United States established the compulsory laws in education for a specific purpose: To ensure that every child receive an equal and necessary education to improve literacy rates, gain better jobs, and be knowledgeable citizens for contribution to our society (National Conference of State Legislators, 2009). My primary issue with homeschooling is that it is largely unregulated, unstandardized, and allows for many of the abuses, that first prompted the compulsory education laws in 1853, to be perpetuated (2009). It is counter-productive to the unification of standardized education that our country intended and should have.

Some research such as the studies conducted by Yang and Kayaardi in their article: "Who Chooses Non-Public Education for Their Children," (2004) as well as Cai, Reeve, and Robinson in "Homeschooling and Teaching Style: Comparing the Motivating Styles of Homeschool and Public School Teachers" (2002) show that the preparedness of homeschool students can be equal or better than the average public school education depending on the factors of socioeconomic status,

as both studies proved (2004, p. 233 & 2002, p. 372). What the research fails to acknowledge are the far reaching emotional, mental, and even educational impacts that homeschooling has on the development of a child. Even in my own experience, I lacked the academic preparedness, the social aptitude, and emotional maturity to be fully prepared to face the challenges of real-life in the world of higher education as well as society in general. This is my problem with homeschooling. My research is an opportunity to tell my story. I hope that through my experience and the voices of my participants, my reactions to homeschooling will be understood and my desire for effective education in our country will be heard.

1.2 *My story*

As an educator, I have spent much time studying and exploring how children learn, how to best organize curriculum and instruction to meet individual student needs, and how to form my instruction to the standards of accountability mandated by the state and government. Although I teach in public schools, I am well aware of the various forms of education being used in this country alternative to the standard public system. In my own personal experience, I have been in public, private, and homeschool settings throughout my elementary and secondary education, but homeschooling was my primary source of education from sixth through twelfth grade. It is because of my experience with homeschooling that I chose to focus my research into this growing trend. My goal was to inform my practice, as well as educators and the public school system in general, to be better prepared for the particular needs of this sector of students particularly in relation to their social assimilation and academic needs.

These two issues, socialization and academic readiness, quickly became the crux of much of my research findings as I conducted my interviews with students who were homeschooled, parents who have or are presently homeschooling, and teachers who have had a homeschool student placed in their class. These were also the most salient issues for me personally in my own experience as a home schooled student. My parents began homeschooling me in sixth grade after having me in public school kindergarten through second grade and private school third through fifth. I am the oldest of four children and all of us were homeschooled, although I was the only one to be homeschooled all through twelfth grade. My younger siblings were put into public school beginning in ninth, seventh, and fifth grade; my youngest sister was the most successful of them, particularly because she started public school at such a young age.

As strong fundamental Christians, my parents felt that homeschooling was the most ideal way to protect me and my brothers and sister from worldly influences and the 'secular agenda' of the public and even private school curriculum and instruction. They also felt that they could provide a better overall education than the public school system. Although both of my parents are college educated, they did not have any type of preparation required for certified teachers. At the time, my father (who was mainly at home with us) was a minster of a church and possessed academic knowledge primarily in English language arts skills as well as theology and history, but he was very weak in mathematics, and science was entirely absent. My mother worked outside of the home as a dental hygienist and she would help sometimes but the primary teacher was my father. Because of the varying levels of our academic needs, I spent a lot of time educating my younger siblings with basics such as reading and math skills. Much of my schooling was done independently with the use of videos and my own reading. There was not a set schedule to my day and my academic work was largely unstructured. I was never held accountable to the standards of mandated state testing

because homeschooling falls under different state rules. My socialization was limited to church and one day a week of attending a 'co-op' with other homeschool families.

After 'graduating' high school I attended a community college for one year and got a job as a waitress. This onslaught of social interaction posed much anxiety for me and it took me a long time to adjust socially. I felt intimidated by the notion of conversing with the 'public' sector and also the elitist perspective of my parents, that comes from their belief that the 'world' is a negative influence and only fellow 'believers' are good, drastically damaged my initial perceptions of people and my ability to interact. Thankfully, it was people themselves who encouraged me towards developing a healthy social perspective. Aside from social troubles that I had as a result of homeschooling, my academics were also lacking. Having very little to no accountability for the rigor of my academic studies, I was extremely behind particularly in math but also in every subject matter. I was never made aware of much basic information that would be standard in the public school setting and tested for accountability. I know that my two younger brothers, put into public school at the seventh and ninth grade levels, struggled excruciatingly with these issues of academic knowledge and social acceptance; one of them dropped out of high school and the other dropped out of college. It is my personal experience and that of my brothers that provides an impetus for my research inquiry.

1.3 *Forming my inquiry; talking to teachers*

I began my inquiry by talking to teachers I worked with to evaluate their opinions about the issue of home schooling. I talked to my former mentor teacher from student teaching and I asked her questions related to parental involvement and the experiences that she had had with students being placed in her classroom from being homeschooled and students being removed to be homeschooled. She expressed concerns regarding these students' levels of immaturity with regard to healthy social interactions as well as being behind academically. She described the parents of the students who were removed to be homeschooled as being overly involved while the student was in school. Although she said that she, and the district, did the best they could to meet the expectations of these parents, she felt as though the notion to homeschool was already present and justification to do so was all that they were seeking. This initial contact with a teacher enabled me to concentrate my inquiry and solidify my own perceptions about the issue.

2. Literature Review

2.1 *Reviewing literature that informed my research; an overview*

As I began to formulate my inquiry into the issue of homeschooling and seek answers to the problems that I had identified, I formulated several key concepts that I believed would guide me to review the literature on home schooling. Since I wanted to uncover the foundation for homeschooling within parental motivations, I initiated my search with the key words of 'homeschooling' and 'parent motivations.' Through this focus I was able to find articles related to parental involvement, which gave insight into why parents choose to homeschool and substantiated the same concerns my mentor teacher had expressed and. Since my other objectives for investigation were into the results of homeschooling on 'graduated' students and the reactions of public education to the growing trend of homeschooling, these latter concepts also constituted a large part of my literature inquiry.

2.2 *Who home schools? An examination of demographics*

Philip Yang and Nihan Kayaardi (2004) found that "blacks and other racial minorities are less likely than whites to homeschool their children" (p.244). Although the surveys were sent out randomly, they found "whites accounted for 78% of the sample, blacks 17%, and other races 5%" (p.238). Relating to socioeconomic status and the likelihood of homeschooling, this study concluded "the average family income of the respondents was between $30,000 and $34,999…more than half of the respondents had an intact family [and] about 85% reported being Christian" (p.238). This study indicated the congruency of race and socioeconomic status to the rates of homeschooling. The relativity of this fact was found to be true not only in this article but was consistent in several of the studies that I found.

Green & Hoover-Dempsey explored parent choices in education and had similar results with some variations within the level of income (2007). For this study, home school families were generally white with an average family income of $50,000, and more than half of the parents were college educated with 20% holding a degree in education (Green & Hoover-Dempsey, 2007). Cai, Reeve, and Robinson (2002) expressed a connection between the limited success that homeschool students have academically and their family's socioeconomic status. Yet, even with one spectrum of homeschooling families fitting into middle class demographic, other voices in my research noted the low socioeconomic status of some homeschoolers (Apple, 2007).

2.3 *Why do parents homeschool? An examination of motivations*

Given the demographics of the homeschooling population and the majority of Christians households who are homeschoolers, the primary reason many parents decide to homeschool is founded in religion (Green et al, 2007) and a belief that the child will be sheltered from the influences that run contrary to believed religious principles (Green, et al , 2007). The studies conducted by Green and Hoover-Dempsey that indicated religion as a primary motivator, coincide with other studies which showed the relationship between parents and schools as a vital motivation to homeschool (Smrekar and Cohen Vogel, 2001). Parents' belief that the school educators and the overall social interaction that their child receives is inconsistent with their moral values, and the lack of public school administration to effectively communicate with these parents, are motivators for them to homeschool.

Kate McReynolds (2007) talked to students who were homeschooled and based on these interviews gave this summation:

> Homeschooling cannot be easily described … Parents have many different reasons for homeschooling their children. For some, the motivation is not the repressive and dreary nature of the public school curriculum, but the need to teach a religious based education. (p.36)

It is because of this motivation to teach their children through a 'religious base' that many parents choose to homeschool rather than subject their children to a 'secular' education. Cai et al (2002) state the homeschool parents' ideology quite explicitly:

> By homeschooling their children, these religiously motivated parents seek to teach specific philosophies and religious values, [and] control their children's exposure to undesirable social interaction partners. (p.372)

Apple also notes this "moral superiority" that many homeschoolers exhibit as a driving motivator to initiate homeschooling and also to continue (2007). He explains the pedagogy for this form of education from a larger perspective of what the homeschooling family represents, that "educating one's children at home and educating oneself to this in 'godly ways'" is the goal of the religiously motivated homeschooler (2007, p.121). Smrekar and Cohen-Vogel also researched the motivations for parents to homeschool only they focused their examinations to aspects of parent-school relations (2001, p.76). Not only is religion one of the primary underlying motivators to prompt homeschooling, but the relationship that schools establish with parents will ultimately be the deciding factor in a parents' final decision to homeschool.

2.4 *The outcomes of homeschooling; an examination of students*

Although my initial literature inquiry did not uncover much information regarding the outcomes of students who are homeschooled, a more recent search rendered some interesting results. Apple (2007) criticizes the curriculum that homeschoolers employ primarily because it "offers the home schooler a curriculum in which Christian teachings are woven into every aspect of knowledge [making] the difference between right and wrong…answerable only through reference to Biblical teachings" (2007, p.123). The curriculum does not offer a wide spectrum of various opinions and thoughts; rather, it is one-sided and entirely biased. These reasons coupled also with the fact that science textbooks dismiss evolution entirely and other subjects will purposely lend content toward a moralistic stance, allow the assertion to be made that homeschool students who are being educated by Conservative parents will not allow their child to be exposed to perspectives that differ from creationism and/or highly moral directives.

From a differing stance, a study done by Jones and Gloeckner (2004), claims that "homeschool graduates are as ready for college as traditional high school graduates" (p.20), although no part of their study was devoted to the consistent findings of other studies that attributed socioeconomic status and race as primary factors related to the homeschool population. The researchers noted that "the sample was relatively small" and "not statistically significant" (Jones et al, 2004, p.20) as they made their assertions. As far as I know, no study has specific statistics on the number of homeschool students that go on to higher education or what careers they followed. The studies by McReynolds (2007), Jones (2004) and Gloeckner (2004) all noted that further study should be done into the specific outcomes of homeschool students. My research explored this issue through the interviews that I conducted with formerly homeschooled students, but further research should be done.

3 Methodology

3.1 *Sample Population*

3.1.a T*eachers*

Three teachers were invited to participate in the study. Two of them teach 6th grade at the same school, in the same county and the other teaches 4th grade at a different school, in a different county. All three are New York State teachers residing and teaching in Central New York. All of them have been teaching for over ten years so their opinions and experiences have been well informed. They were very eager to voice their personal beliefs about homeschooling based on the many experiences that they have had teaching students in this area. They were very flexible about scheduling times to meet with me and one teacher specifically asked to know the findings of my research to inform him about how to react to homeschooling as a very real issue in schools.

3.1.b *Parents*

The parent sample consisted of three women, two of which are presently homeschooling and one who homeschooled but has since placed her children back in public schools. Although communications were sent to the families, it was the mother of the household who responded because she was the parent responsible for the implementation of homeschooling in their family. All three of the parents are stay-at-home moms who spend their time educating their children while tending to the home; the fathers work full time to support their families. These families would be considered middle to upper class all residing in central New York. One was from a rural area and the other two from suburban. All of them are White, ranging in age from mid-thirties to mid-forties. The number of children that they homeschool, or had homeschooled, ranges from two to four. Because I knew the parent population previous to initiating my research, I know that each of the families is very religious and found homeschooling to be the best educational option for them because it perpetuated their beliefs.

3.1.c *Students*

My final sample population was students who had been formerly homeschooled. There were three completed interviews. They were conducted with two males and one female. These students were from different households than the participating parents to ensure individual opinions that were not duplications of their parents' views (as much as possible). The families of these students were White, middle to upper class, residing in Central New York, both from suburban areas and their families are highly religious. Each of them graduated for 3-5 years ago giving them ample time to reflect on the educational experiences that have impacted them and their present accomplishments.

3.2 *Instruments*

The instruments that I used were fairly straightforward and simple. Being that my goal was to gain the most authentic information, I found that face to face interviews, e-mails, and instant messaging worked best to accomplish my purposes. The interviews were very conducive to the schedules of the teacher population and the parents, but instant messaging became vital for gathering information from my student population. E-mail played a role with all populations as a means of introduction

and follow-up as well as sending questions to a few participants who were unable to meet face to face.

3.3 *Ethical issues and validity*

Ethical issues were not only addressed by gaining approval from the Human Subjects Committee at SUNY Oswego, but also through my choice of instruments. By using interviews, my hope was to gain a more authentic representation of what my sample populations felt about the issues of parental motivation and homeschooling in general. In an interview, I was able to ask probing questions or insert additional questions as our conversation unfolded. This ease in discussion allowed for more ethical research to occur. Issues related to validity were addressed primarily through the individuals that I approached to participate in my research. I was sure to not interview a student and parent from the same family because I wanted a variance in perspectives; the teachers were spread between three different schools, although they are in the same area.

3.4 *Procedure: Implementing my research plan*

3.4.a *Permission to begin research*

I obtained permission from the Human Subjects Committee at SUNY Oswego to ensure that the intentions and plan for my research were ethical and reasonable. They also had to approve the letter of consent that I would be sending to each participant of my research, approving and addressing that all possibilities for liability and validity were attended to.

4. Data Analysis

4.1 *Data reduction and display*

After gathering data from each of my three sample groups, I transcribed the interviews and then developed a color-coding system to underline or highlight responses that addressed a similar topic or theme. Although I had representative opinions from three very different populations, I knew that there were strains of similarities that each of them contained. It was these general ideas addressing several topics of my research that I used to code the responses. After I had done this with the parent, teacher, and student responses, I organized my conclusions into a chart for each major topic area. After reading through the responses from each of my representative populations, I identified three major categories and several sub-categories under each of these general topic areas. This was the most concise means that I could arrive at given that my data was qualitative and therefore very random in the variances of individual responses. I organized my data into three categorizations that best addressed the issues that were voiced by my sample populations. Although many issues were raised and it was difficult to narrow my conclusions to a particular point, the primary categorizations that emerged through these discussions were reasons why parents chose to homeschool their children, negatives to homeschooling, and positives to homeschooling.

4.1.a *Reasons parents choose to home school their children*

This first categorization was motivations or reasons, answering the question: "Why do parents choose to homeschool their children?" Under this, I denoted the color pink to the topic of 'religion/ control prompted by fear,' yellow for a desire to have 'one-on-one/individualized attentions for children,' orange for 'negative social influences,' blue for 'discontent with public schools/bad experience with public schools,' and I underlined with pen the topic of 'surgery or a disability with the student.' Of these topics, 'religion/control prompted by fear' and 'negative social influences' were the most frequent motivations as cited by parents, teachers, and students. Although these topics are linked to each other in that both are essentially motivated by fear, I felt it necessary to differentiate the two because some were motivated by one and not the other. Quotes from parents to support this conclusion include, "Homeschooling gives us better oversight of our children's social influences" (Parent 1) and "I wanted to instill in my child godly principles that produce outstanding character" (Parent 2). One teacher in particular addressed both topics in his response to the question: "What do you think motivates parents to homeschool their children?" He said:

> I think that fear probably motivates parents to homeschool their children. I think that parents fear that 'public schools' allow for many 'inappropriate' activities and experiences. By keeping their children home, they insure that children are protected from this. I also think that religion fuels much of the homeschooled incentive. (6th Grade Teacher)

Students' reactions echo these ideas with responses such as, "My parents homeschooled because they wanted to protect me from immoral influences that I would have in public school." There were many statements to support each of these categories but the two most prominent are the trends that are most accurate for drawing definitive conclusions.

4.1.b *Negatives of homeschooling*

After narrowing down the motivations for homeschooling, the remainder of my questions sought to determine the negatives and positives related to homeschooling in each of my populations' opinion. Again, I created two larger categorizations: Negatives to Homeschooling and Positives to Homeschooling, under which I outlined specific topics. Under 'negative' aspects, dark green signified socialization, red was for academics, and light green was for parent qualifications. Socialization and academics were most addressed by my participants. Of course negatives were rarely cited by parents but teachers and students were very eager to voice their opinions. Although two teachers did say that parents' qualification to teach was a concern and that some parents "lack the educational background to teach a single grade level, not to mention several," they agreed that it is their prerogative and some are qualified. But, all agreed that socialization and the full academic experience cannot be replicated at home.

For socialization, one parent, all the teachers, and all of the students said that this was a major negative point to homeschooling. One teacher said, "Our children are not going to be sheltered throughout their lives and the more exposure we can provide for them the better off they will be later in life," one parent echoed this: "I thought that I was protecting my child but I now realize that I ill-prepared him for the realities of life," and students realized that "public school does provide more awareness of the world around you." Relating to academics, two teachers said that formerly

homeschooled students who came into their classes were "shell shocked" and "they may appear to be more intelligent, for example many have a very solid vocabulary…but they are socially and educationally behind their peers…they seem to struggle more with abstract concepts." A formerly homeschooled student said, "A home can't provide the equipment for learning as well as public school- especially with science."

4.1.c *Positives of homeschooling*

My final generalized heading addressed the positives to homeschooling. Aside from the comments about homeschooling being a parent's prerogative and that some parents are qualified, the teachers as well as the students did not have many positives to offer, but the parents could only offer me the positives of homeschooling. The color brown was used to indicate the topic of 'individualized attention,' grey was used for the topic of 'no testing,' and purple for 'parents asserting right/freedom' to homeschooling. In response to a question that asked about the lack of standardized tests and recognized diplomas for homeschoolers, one parent said, "I strongly oppose mandated testing and equally awarded diplomas," her rationale being that she did not want her children to "be under the influence of government education." Another parent who was more concerned about the fact that her children will not be awarded equal diplomas said that "her children take the GED (General Education Diploma) test" and that "most colleges and, of late, most workplaces" recognize that homeschoolers get a good education.

5. Results, Interpretation & Discussion

Having completed this research, I feel that much of the understandings that I had previously, due to my own experiences as a homeschooled student, were confirmed through my research. The students that participated felt very much like I did after graduating. They were left without a recognized diploma, they felt socially "sheltered" from the world, and they did not feel prepared academically for the rigors of college. From my experience, my parents homeschooled me for religious reasons as well as with a desire to protect me from negative social influences. These motivators were echoed by each parent that I interviewed, and teachers also attributed these reasons as being the source for a parent's desire to homeschooling. The correlations between socioeconomic status, religion, and race related to the consistency of homeschooling as well as the motivations for it are indicated throughout not only my literature but also the conversations that I had with each of my populations. This allows for the conclusion to be drawn that these are facts about the homeschooling population and what factors consistently impact the reasons for homeschooling.

The responses that I received were straightforward in answering my questions and my method for coding the data to find themes worked very well. Overall I am very pleased with the results of my research and I feel better informed as an educator having completed this process. Not only did I expand my knowledge base regarding an issue that is very pertinent to the public educator, but I was also able to develop my professional skills as a researcher. I had to adapt my instrument methodologies when responses were not received and I considered other means that I could have used in implementing my research that might have been more effective. I could have allowed the opportunity for my participants to respond to the questions outside of an interview at the onset of

my contact with them. The arrangement of interviews was the most difficult aspect of implementing my research.

As an educator, one of the immediate impacts that I saw arising from my research was the placement of homeschool students in the classroom. The introduction of a homeschool student changes the dynamics of the classroom environment because of the noted struggles that he/she may have relating to academics and socialization and this may also pose varying issues in perspectives for the teacher who is seeking to meet the needs of every student. My goal was to inform my practice, as well as educators and the public school system in general, to be better prepared for the particular needs of this sector of students particularly in relation to their social assimilation and academic needs within the classroom to ensure that they do receive the education that they deserve.

My personal experience and that of my brothers gives a foundation to my research inquiry and allows the passion that I have for this issue to be heard. According to a most recent article published by the U.S. Department of Education, National Center for Education Statistics, in December 2008, "data from the 2007 NHES survey show an estimated 1.5 million students (1,508,000) were homeschooled in the United States in the spring of 2007. This represents an increase from the estimated 1.1 million students who were homeschooled in the spring of 2003." This article goes on to explain the research conducted into parental motivations to homeschool and cites the number one motivator from parents as a desire "to provide religious or moral instruction (36 percent). For an additional 21 percent, the most important reason was concern about the school environment and for 17 percent it was dissatisfaction with the academic instruction available at other schools" (U.S. Department of Education, 2008). It is the increasing number of homeschool students and the reasons for them being homeschooled that pose a significant concern for me as an educator and as a product of these homeschooling motivations.

In my research, I had the opportunity to interview three parents, three students, and three teachers who all have/had direct experience with homeschooling. My findings concur with the larger statistics from the Department of Education as all three individuals from all three groups named "religion/control prompted by fear" as their foremost reason for either homeschooling, being homeschooled, or (in the case of the teachers) the reason explained to them and their overall impressions. As I have explained, my own parents' motivation was this and the perspectives that flow from this logic dramatically affect the children involved socially and academically. In conjunction with the statistics and the responses from my participants, I also found literature that supported my findings as I investigated what motivates parents to homeschool, what are the impacts of this on students, what teacher's reactions to this are, and what parent expectations from public schools are.

An article by Green and Hoover-Dempsey titled: "Why do Parents Homeschool: A Systematic Examination of Parental Involvement," reveals that parents who homeschool are motivated "by moral convictions, a strong sense of value for helping their child learn, and a desire to create positive perceptions about life context within their child" (2007, p. 264). Parents feel that by homeschooling their children, they can instill in them moral convictions and guides that will make them exceptional individuals. They believe that society holds negative impacts that will counter their moral beliefs. Other literature indicated that "family-school interactions were controlled by highly defined, socially constructed scripts that institutionalize the relationships among parents,

teachers, and school administrators" (Smrekar & Cohen-Vogel, 2001, p.76). These articles, among many others, show that moral beliefs, interest in one-on-one attention to their child, as well as negative experiences in their interactions with school personnel all impact the perpetuation and the motivations of parents to homeschool.

Although my sample represented a small sector of opinions from one specific area in New York State, the national statistics as well as the literature findings serve to strengthen my conclusion that moral convictions are the primary motivator for parents to homeschool. Directly linked to this, the ramifications of homeschooling impact students primarily on a social and academic level; my research and personal experience have consistently concluded that these impacts are largely negative and create struggles for students as they seek normal assimilation into society. After talking to the sample population of teachers that participated in my research and as I continue to discuss this issue among other education professionals, participating teachers expressed a very deep concern about the long-term outcomes, in terms of academic and social readiness, of the formerly homeschooled students that they have had in their classrooms. With the number of homeschool students on the rise every year and the possibility of more students joining the public school system at varying age levels increases, educators' awareness of homeschooling as a viable issue is a significant problem.

Many, if not all, of the teachers that I talked to expressed a desire to know more about homeschooling, the motivations for it, and how they should react to it because they see it as an issue that they are not fully informed about. Foremost, they believed that more rigorous regulations should be in place for homeschool families to ensure that every student in this country is receiving an equal and well-rounded education. The public schools are being held to higher and higher standards and accountability for what they are teaching especially with the No Child Left Behind Act (U.S. Department of Education, 2009) and the requirements that it enforces. Yet, while this is taking place, homeschool students are not required to take any type of state or federally mandated tests and furthermore, will not even graduate with a recognized high school diploma. This alone places homeschool students at a disadvantage and immediately calls into question the academic quality of the education that they have received. Like my parents, many of these parents who are homeschooling are not qualified educators. They certainly are not as knowledgeable in the subject areas that a content specific public high school teacher is, to be able to teach the in depth content that students should have.

I have struggled a lot throughout my college career because I know that I was not academically prepared to handle the rigors of a higher education classroom environment. Have I succeeded despite my difficulties, graduating Summa Cum Laude from SUNY Brockport with my Bachelor's Degree and maintaining a 4.0 grade point average at SUNY Oswego as I completed my Master's Degree, yet I fear for those other homeschool students who initially struggled like myself but will not fare so luckily. In particular, girls who are homeschooled for the reasons that most parents say they do homeschool (moral and religious sheltering) are not encouraged toward higher education and certainly not careers. Many of these young women are designated into roles of home-makers and mothers thus not motivated toward academic accomplishments. I have witnessed this type of subjugation and I know that it is a very real issue affecting these young women even if they are unaware of the inequality being perpetuated because they are brainwashed into believing their 'role' as mandated by the Bible. More research should be done into the outcomes and overall affects of homeschooling, not only as a significant issue to education, but also as a question of human rights.

Educators need to know how real this issue is in America. Homeschooling is ever-increasing and students are being left behind despite the efforts to not do so. More regulations need to be in place and parents must be held more accountable for the education that their children are receiving. Nothing can replace the severe importance of socialization but perhaps requirements could be put into place to be sure that these students are prepared to face the realities of the world that they live in and the very real people that they will have to interact with. As an educator, my goals and dreams are to ensure that all students are given an education that promotes good citizenship and inspires them to accomplish all that they hope be. I believe that homeschooling hinders these dreams and does not allow students to develop the healthy perspectives needed for success in the real world.

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INFUSING EDUCATIONAL TECHNOLOGY INTO ELEMENTARY CLASSROOMS

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The purpose of this study was to examine the infusion of educational technology into elementary classrooms. The population consisted of educators in a rural elementary school located in Central New York. The researcher gathered data using several instruments. The first instrument was a questionnaire sent to all teachers in the elementary school. Based on the number of teachers who responded to the questionnaire, the pool was narrowed down to two teachers who were interviewed. After the interviews, the two teachers were observed using educational technology in their classroom. Each teacher used a SMART Board, desktop computer, ceiling mounted projector, and Microsoft software. They used their SMART Boards during center time and allowed students to work in groups or independently on the SMART Board. These classrooms remain consistent with the theory that technology based classrooms possess constructivist teaching styles. These classrooms maintain a student-centered dynamic by enforcing technology which is a powerful tool to possess in an elementary classroom. This tool allows students to excel in their learning.

I. Introduction

Integration of educational technology has been a difficult process for educators and administrators. The National Center for Educational Statistics (NCES) reported that in 2005, 94% of public school instructional classrooms had Internet access. In the year 2005, 97% of public schools with Internet access used broadband connections to access the Internet. In 2000-2001, 80%-85% of schools were using broadband connections (National Center for Educational Statistics, 2000, 2001). Internet access to public school classrooms made an enormous jump from 2000 to 2005, increasing from 12% -17% in a matter of five years. The problem with this huge increase is the lack of properly utilizing educational technology in classrooms. Educators have the technology needed to enhance their classrooms, but are not assuming the correct methods of integration.

According the National Center for Educational Statistics (2000, 2002, 2005), about one third of elementary educators in the United States felt well or very well prepared to use computers and Internet in their classrooms. Teachers with less teaching experience felt more prepared to integrate technology in their classrooms than their more experienced colleagues did (National Center for Educational Statistics, 2000, 2002, 2005). Teachers are using their computers and Internet access for administrative purposes and preparatory tasks and not for instructional activities with students. The lack of teachers' preparation is causing elementary teachers to shy away from using technology in their classrooms. Teachers are used to teaching the traditional method of transmitting information to students, causing them to lack the confidence to integrate the technology they have into their instructional methods. Many barriers contribute to elementary teachers' failure to infuse technology

into their instruction. These include lack of availability, lack of time, lack of leadership, lack of training, and lack of computer access (Franklin, 2007).

Community members of elementary schools expect their children/students to receive the best education available through the curriculum. Integrating technology into the elementary classroom can be expensive and time consuming, but when properly infused into the curriculum, students receive a well-balanced and in-depth education.

Educators strive to reach each of their students' specific learning style to create a beneficial learning environment for their students. Today, classrooms provide enriched educational technology that enhances student learning. Teachers have access to devices for reading assessment, electronic response systems, software programs for assessment and grading, and skill-based software and online resources, which are some of the abundance of tools used in assisting students (Fox, 2008). These educational tools are tailored to students' individual needs and different learning styles. Students at risk of performing poorly in school or failing out are receiving the instruction that allows them to strive and remain in school (Fox, 2008).

The days of carrying quizzes, a grade book, students' assignments, and other bulky books are over. Technology is not only beneficial for students, but also for teachers. The abundance of technology offered to teachers allows them to be more beneficial in their occupations. Teachers can review other lesson plans or gather ideas on lesson plans from the Internet. Educational technology is creating an occupation in which teachers/educators never before shared their classroom strategies, to an occupation that has hefty qualities of information available for teachers to enhance their classrooms.

The purpose of this study was to expand our knowledge on the significance of infusing educational technology into elementary classrooms. The study explored the benefits of infusing educational technology from a teacher point of view. This exploration illustrated the practical aspects of using technology as a tool for teaching in the twenty-first century.

II. Literature Review

Recent research has shown that education has come a long way from the turn of the nineteenth century, when the United States education system started with one-room schoolhouses and developed into today's building with multiple grade levels (Fulton & Riel, 2001). Students were categorized by their age and ability in an effort to create a homogenous unit so that the teacher could teach to their designated ability (Fulton et al., 2001). In this method of teaching, each of the students was required to work independently on all assignments. A student assisting another student was seen as a form of cheating, uncooperative, or disobedient. Elementary classroom instruction was not focused on the community involvement, but on individual achievement (Fulton et al., 2001).

Recent research has shown that each student is different and, as educators, we need to tailor students' needs to our lesson plans. Each student learns at different rates, methods, and experiences. "More important, this diverse community of interests and abilities offers a rich learning resource that could be used to structure learning environments that would be far more effective than any programmed sequence of 'one-size-fits-all' lessons" (Fulton et al., 2001).

The eighteenth century rigid teaching style is difficult for young students and research has shown that elementary students benefit from a constructivist teaching style (Judson, 2006).

Administrators are requesting their teachers to put aside their traditional teaching methods and create a student-centered classroom. Constructivism is teaching and learning is based on the idea of students acquiring new information by piecing it together with other information they previously learned. Teachers that readily integrate educational technology into their classroom instruction are more likely to possess constructivist-teaching styles (Judson, 2006).

Teachers who have successfully integrated educational technology into their instruction and classrooms are starting a new generation of advanced classroom practices. Observers looking in on these classrooms notice students busily using technology to analyze data, perform research, communicate with outside sources, and compile reports.

Related literature reviews indicates that integration of technology results in the following finds: (A) constructivist teaching methods; (B) learning communities; (C) diversity in teachers integrating technology; (D) elementary students' use of computers; (E) factors that influence computer use.

II. a. Constructivist teaching methods

The connection between the use of educational technology and constructivist pedagogy implies that constructivist-minded teachers generate student-centered classrooms where instructive technology is a powerful learning device (Judson, 2006). The teacher is an influential person in infusing technology into the classroom. Teachers are the individual denying or allowing technologies into their classroom instruction. Great emphasis is placed on the individual teacher as to how and how often technology is used. Researchers have calculated the number of computers within a classroom or the diverse educational programs used. "This type of accounting of hardware and computer activity time does not argue for, not disprove, whether technology integration is aligned with any particular pedagogical style" (Judson, 2006).

The correlation between teachers' beliefs and educational technology determines the amount of technology infused in the curriculum. After reviewing several surveys, a strong correlation was determined to exist linking educational technology use to constructivist views on learning. In stating this, educational technology may be one feature that permits teachers to perform in a constructivist method. Teachers with more use of classroom technology also reported larger alterations in their current practice of constructivist method of teaching. Teachers reporting on the surveys that they increased the amount of educational technology use in their classroom also noticed a substantial increase in their constructivist methods (Ravitz, 2000). The participants for this survey consist of 4,083 classroom elementary teachers (Judson, 2006). The constructivist philosophy teachers adhere to can be defined:

> A theory that defines knowledge as temporary, developmental, socially and culturally mediated, and thus, non-objective. Learning from this perspective is understood as a self-regulating process of resolving inner cognitive conflicts that often become apparent through concrete experience, collaborative discourse, and reflection. (Sandholz, Ringstaff, & Dwyer, 1997)

Teachers have stated that allowing educational technology into their instruction allows students to discover ideas for themselves.

II. b. Barriers in infusing educational technology

Educators are the key players in changing the educational system, in particular the learning and teaching methods used within their classrooms. Since Information and Communication Technologies (ICT) have become involved with the education system, schools are challenged with a new social, cultural, and educational experience, which creates complex tasks for teachers in terms of their technical ability (Levin & Wadmany, 2008). ICT generates new direction and encourages educators to take on new opportunities that ICT offers to make schooling more significant and satisfying (Levin et al., 2008).

ICT has extensive investments in the educational field in many countries, but ICT advances at a slower pace than expected (National Center for Education Statistics, 2005). Despite the continual support for ICT on the learning process, connecting with this great resource depends on the actual teachers using ICT. Evidence shows, changing educators' practices is proving to be a multifaceted duty (Mills & Tincher, 2003).

Teachers are only starting to incorporate a modest amount of technology into their classrooms (Yildirim, 2000), even though the continual change in computer technology advances. ICT is used normally during traditional teaching methods, simply if ICT best fits the traditional practice. Classroom practices of technology are focusing on skill and drill assignments, rather than learning intentions or assessment. Educators need the confidence to develop ICT for fresh teaching approaches (Levin et al., 2008).

In the education system, there are a significant breach between ICT and teachers' desires to infuse technology into their classrooms, due to the lack of training, hardware or software, but due to the incompatibility between the goals of education between teachers, students, curriculum, and administrators (Voogt & Pelgrum, 2005). One of the largest barriers in integrating educational technology deals with ICT applications not being attuned with curriculum or educational software. This means teachers need to make two drastic changes in their classrooms; teachers must learn to use technology and; teachers need to change their teaching methods (Scrimshaw, 2004).

To adopt ICT to school systems, more attention needs to be drawn to the conditions affecting the profession by teachers themselves. We need insight into teachers' beliefs regarding the usage of educational technology and the teachers' learning of ICT information in the classroom.

Some researchers state that teachers create the most impact on technology in schools and therefore, factors correlating to teachers are most frequently cited as influencing technology use in schools (Levin et al., 2008). Hardy's (1998) review of studies on educator attitudes conveyed teachers' attitudes affect the use of technology in their classrooms, more than other factors such as administrators or lack of adequate technology.

II. c. Educators use of educational technologies

Nearly all of the research reviewed comes down to these four reasons educators use technology in the classroom. (a) locating and gathering materials; (b) communication; (c) posting information, and (d) writing lesson plans (Franklin, 2007).

The first factor, locating and gathering materials allows the educator to use the Internet or other databases to search for information pertaining to the lesson plan. The second factor, communication can be conducted by using e-mail, Instant Messenger, or Skype. These communication tools allow teachers to contact other teachers via letter (e-mail), converse directly with other teachers (Instant

Messenger), or talk over the web (Skype). These are great communication tools that teachers use to contact with other teachers, administrators, or parents. The third factor, posting information allows classroom work to be connected with outside resources. Many teachers currently teaching have a classroom website on the World Wide Web (WWW). Teachers are able to post information pertaining to their classroom linked from the district website. Community members can view this website from their home or work place and this allows teachers to share their classroom content with other educators. The fourth factor, writing and developing lesson plans, allows teachers to use a word processing tool to type and design a lesson plan (Franklin, 2007).

II. d. Student use of educational technology

Students' use of educational technology is typically dependant upon the teachers' beliefs in integrating educational technology. Elementary educators typically disperse computer assignments to be completed in the classroom, during the school day. Students' use of computers at the elementary level is going to vary from grade to grade. In the primary grade levels, (K-3) students mostly used the computer for drill and practice exercises (Franklin, 2007). Primary students would use the computer to practice their mathematical facts, typing, or content curriculum. Older students tended to use the computer for word processing or presentation software; these students would type their reports or create a presentation. In all grades though, it is visible that students are using the Internet to a significant degree. Each grade level varies with the amount of time spent using educational technology or computers (Franklin, 2007).

Franklin (2007) created three primary factors for students using computers in the classroom. (a) general software applications, (b) complex/multimedia and communication tasks, (c) practice/simulations. The first factor, general software applications, applies to the different educational software used by the district. These programs consist of, but are not limited to painting and drawing, word processing, presentation software, spreadsheets, and typing programs. The second factor, complex/multimedia and communication tasks include e-mail, data analysis, HyperStudio, and Inspiration. The final factor, practice/simulation includes a variety of district or free programs offered to students to reinforce drill and skill development. Educational technology integration into elementary curriculum reinforces students' use of computers.

II. e. Educational technology learning communities

A new and intuitive idea to integrating education technology is to build learning communities. Technology can increase working and learning from others who are distant from the classroom and expands the socio-cultural links. Technology such as the Internet allows students to explore world and cultural concepts without leaving the classroom. These tools provide a powerful and expansive instructional facet for teachers (Riel & Fulton, 2001).

Rarely in our society does isolated learning occur, most students are working together and building on ideas and practices, therefore learning is generated in 'communities of practice' (Lave & Wegner, 1994). In learning communities, students are learning the basic principles of working together, as a team or unit. Students in learning communities are geared toward finding information for a particular topic. The information being learned is an interactive process that develops as community members work together to create a shared understanding (Fulton et al., 2001).

Internet technology provides an in-depth format for the community to participate in education of the future. Past technologies such as videos, print, photographs, and textbooks are one-way modes of communication with the viewers. Interaction with experts on the Internet allows students to have conversations with experts in a particular field the students' are researching. This transforms the classroom into a learning community that is world wide with communication from people all over the world to provide input on a topic. Two samples of educational technology methods are, electronic field trips and online mentoring (Fulton et al., 2001).

Electronic field trips allow students to travel anywhere in the world to discover new and exciting information. Electronic field trips make it possible for student and teachers to unite with researchers and scientists exploring distant regions, such as Mars, the ocean floor, or the rain forest. Students have had the ability to reserve time on the Hubble telescope and follow a team of scientists through their adventures in the Mexico, Guatemala and Belize rain forest, in search of lost Mayan cities or clues to environment prevention (www.virtual-canyon.org).

Teachers also have the ability to work with other teachers from any field and invite those experts into their classrooms without even leaving their classrooms. Curriculum content experts are matched with teachers in programs such as the Hewlett-Packard Mentor Program, which matches adult mentors with students to provide students with support and direction in educational learning (www.learn.org/circles/mentors.html). Other programs include the Writers-in-Electronic-Residence program. The Writer-in-Electronic-Residence program gives authors the opportunity to work with students to improve their writing (Fulton et al., 2001).

Increasing changes in our environment makes it necessary for people to become life long learners. Schools need to model this progress for young students and to advocate increased teacher learning opportunities. Teachers are faced with many obstacles, simply from attempting to cover the curriculum to standardized testing. The opportunity to have learning communities offers a revolutionary change in the way we organize school curriculum (Fulton et al., 2001). It means using technology in a meaningful and beneficial manner for all parties involved.

III. Methodology

III. a. Participants

Participants were teachers from one elementary school in a rural school district in Central New York. The school has kindergarten through fourth grade in one building. This building has one principal and 34 teachers varying in skills and levels. Over 50% of the teachers in the elementary school are female and only 3-4 male teachers are currently teaching in the building. The teachers selected for interviews and observation were the teachers with the most technology usage in their classroom. These teachers were part of the five teachers who completed the questionnaire. Two teachers (a fourth grade teacher and a first grade teacher) were selected for the interviews and observations. Each interview was 20-30 minutes in length and each observation was for 5-6 hours. Students were not used within the study. Students were present during the observation, but only the technology or computer programs they were using were noted. The point of the research was to observe teacher integration of technology in their classroom.

The volunteer participants for the study are outlined in Table 1. These are the volunteers that participated in the initial questionnaire sent to all elementary school teachers in the rural central New York school.

Table 1. Demographic Characteristics of Volunteer Participants and Their use of Educational Technology

Participant	Number of Years Teaching	Sex	Grade Level	Integration of Technology
A	10	Female	4	Yes
B	10	Female	2	No
C	20	Female	2	Yes
D	14	Female	K-3	Yes
E	30	Female	K	No

III. b. Method of sampling

The elementary school used for study was selected because of their large amount of educational technology integrated into elementary classrooms compared with surrounding districts. All the participants were currently teaching in their own classroom at the elementary school in Central New York. The participants were volunteers who responded to an e-mailed questionnaire. The use of volunteers for this research project greatly restricts the results of the research. The questionnaire had four questions and took approximately 10 minutes to complete.

The participants who answered the questionnaire were then selected based on the amount of educational technology in their classroom to participate in the interview and observation section of the research. The participants were informed that the interview would take approximately 30 minutes to complete. The observation of educational technology integrated into their classrooms would take 4 hours to observe.

III. c. Instrumentation

Questionnaire

To determine the amount of educational technology infused in the elementary school classrooms a questionnaire was used. This questionnaire contained four questions to measure the type of educational technology in teacher's classrooms revealed: (1) type of technology used the in the classroom; (2) how the selected types of technology were used in the classroom; (3) the type of support provided to the teachers; (4) input from the participants pertaining to other points of interest about the use of educational technology in their classroom. Questions 1-3 allowed the participants to select multiple answers and the fourth question was an open-ended question.

Interview

The second instrument used with participants was the interview. The interview was used to gain information on the background of the participants and their points of view on integrating educational technology into their classrooms. The questions were composed of open-ended questions, multiple-choice questions, and, rating scale questions.

Observation

The third instrument used with participants in the research was observation. The observation consisted of the researcher viewing the participants infusing educational technology into their classroom routines. The observation consisted of the type of lesson, duration of lesson, technology used, how the technology was integrated into the lesson, the response of the audience, and the participants' confidence integrating and using the technology. There were notes taken by the researcher based on the different lessons observed during the 4 hours of observation.

III. d. Procedures

The elementary school principal was given a consent form, which was approved by the Human Subject Committee at SUNY Oswego. The form indicated (1) the research in integrating educational technology in elementary classrooms; (2) background on the researcher; (3) contact information for the head of the Human Subject Committee, professor, and researcher; (4) the time frame the research would be conducted in. The principal signed the form and allowed the research.

Participating elementary school teachers were given consent forms to allow the researcher to observe and interview select teachers. The form was approved by the SUNY Oswego Human Subject Committee. Copies of the form were hand delivered to each participating elementary teacher. Permission from each teacher was e-mailed to the researcher notifying her that they were willing to participate in the researcher. The researcher then picked up the forms during the observation with the teacher.

In order to maintain confidentiality pertaining to the questionnaire, the researcher received e-mails from the teachers that were not visible by administrators or other teachers of the elementary school. After receiving an e-mail from a teacher, the name of the teacher was eliminated from the e-mail to maintain confidentiality. The information from the e-mails was collected and then deleted immediately.

The teachers' interview questions were only viewed by the researcher and by no other person. Teachers' names were changed to protect their privacy. The elementary teachers' students were not used in the research. Only the technology the students were using was indicated in the study.

IV. Data Analysis

IV. a. Data reduction

The data collected was organized within Microsoft Excel. The information was placed into columns that answer that particular question. For example, the question would be stated and for each answer would be given a column. This allowed easy organization when the data was submitted to be organized into graphs and charts. The information was submitted to 30 plus elementary teachers, six of whom responded. Their information varied by grade level, experience, and technology usage. The questionnaire was simple and to the point. Teachers answered questions based on the amount/type of technology used; the questionnaire took less than five minutes to complete. These simple questions allowed the researcher to determine if they were using a large quantity of technology in their classrooms.

The interviews were based on eleven questions, which took between 20-30 minutes to complete.

Again, the questions were organized into Microsoft Excel for simple and easy collection of raw data. The questions/answers were then generated into graphs and charts for simple visuals. Open ended questions were placed in Microsoft Word and certain themes were highlighted, included integration, educational technology, district training and support.

The observation was done within a 5-6 hour segment. The teachers used their SMART Board or laptop computers in a similar fashion daily. Through the observation, an outline was generated for certain items that should be noted on the observation form. These items were critical in gaining further knowledge on the integration process. The observation form was divided into separate questions; this made the form pre-coded by questions. Breaking the information down further into more detail, certain words were highlighted, such as integration, technology, benefit, or SMART Board. These words were the keywords during the research. By highlighting these keywords, a theme started to emerge.

V. Findings and Results

The theme pertained to teachers' methods of integrating educational technology into elementary classrooms. This showed that three of the five teachers in the district were integrating educational technology through their SMART Boards and computer lab. Eighteen percent of the teachers completed the questionnaires; four of five teachers use computers in their classroom, either for their own personal use, or the classroom use. Question one on the questionnaire,
"Provide ways in which technology is frequently used within your classroom," showed that 56% of teachers use computers, 33% use SMART board and 11% use another form of technology (Fig. A). Each teacher in the district was provided one classroom computer at the time of the study.

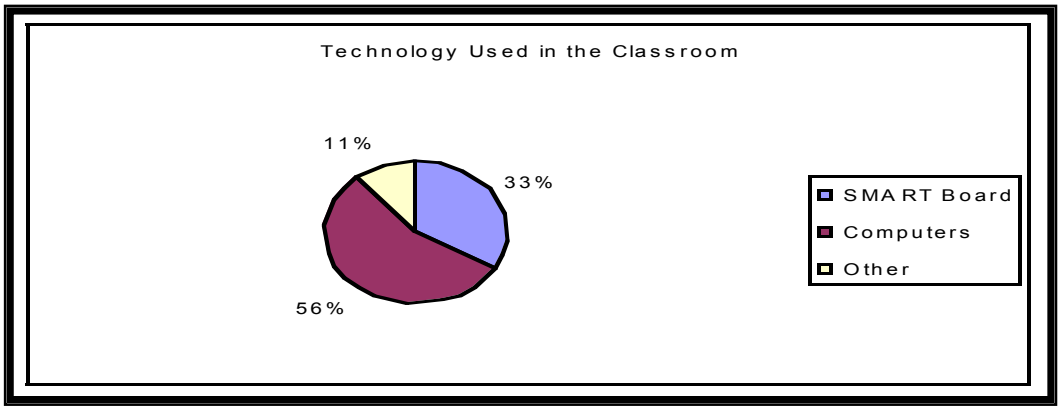

Fig. A: Different types of technology used in elementary classrooms.

In first grade, there was a mobile laptop cart for only first grade teachers to use. Another mobile laptop cart was provided to teachers in the rest of the school, with pre-reservations required. Two computer labs were also open for the teachers to reserve and use with their classes. One computer lab was open for teachers to reserve in advance and the other computer lab is reserved for classes as their special.

In the computer lab, students were required to complete several activities before having the

last 10 minutes to play games or surf the internet. Students used the computer program Odyssey, which was a purchased educational program provided by the district. The program allows students to learn their curriculum per grade level, in the following subject areas: mathematics, language arts, science, and social studies. The program is geared towards increasing student achievement within the district. Students can pick and choose which subject area they would like to participate in or their teacher determines which area they should be focusing on. Most of the teachers have students work on their mathematic facts for 5-10 minutes when they first start working on the computer. Students do practice their typing, with a typing program produced for elementary students. Students have the ability to play educational games that last 10 minutes on websites such as pbs.org or discoverykids.com. The whole time students were in the computer lab they were learning good posture for typing and computer usage, plus each student had their own headset and computer. This limits the amount of noise produced by their reading activities or their computer programs being used.

Question two focused on the types of technology used in the classroom. Teachers provided information pertaining to SMART boards, computer, or other forms of technology. In a district that provides a computer to each teacher in their classroom, the percentage of teachers using computers in their classroom is high. The percentage of SMART Boards shown in the questionnaire was fairly high: 18% of teachers use their SMART Board. The numbers of teachers that have SMART Boards were low within the building; only two SMART Boards were given to each grade level at the time of the study. This was a pilot while the district researches the benefits of having SMART Boards in the elementary building. The district currently likes the idea of having SMART Boards in the classroom, but is lacking the funding to purchase SMART Boards for each classroom. Most of the teachers using technology were dedicated to educational programs, 28% of the time teachers use either Odyssey or internet educational programs for students. Other computer programs were not used as much, due to several factors such as not enough time for teachers to use the programs or their lack the knowledge to use the programs (Fig. B).

Question three asks teachers the types of support they are provided within the district. The majority of teachers receive support through their own computers (37%), which entails the use of the help function of their computer through different programs. The district provides 27 % of teachers with their own district resources. These resources can be Information Technology professionals (located in the district or through BOCES) or their computer teacher located in each building. Support provided by self development (learning through experiences and playing with a computer independently) and workshops were the same, with 18% of the majority of their training through a district IT professional (Information Technology) or self development. No information was given if teachers were provided support through other means of assistance (Fig. C).

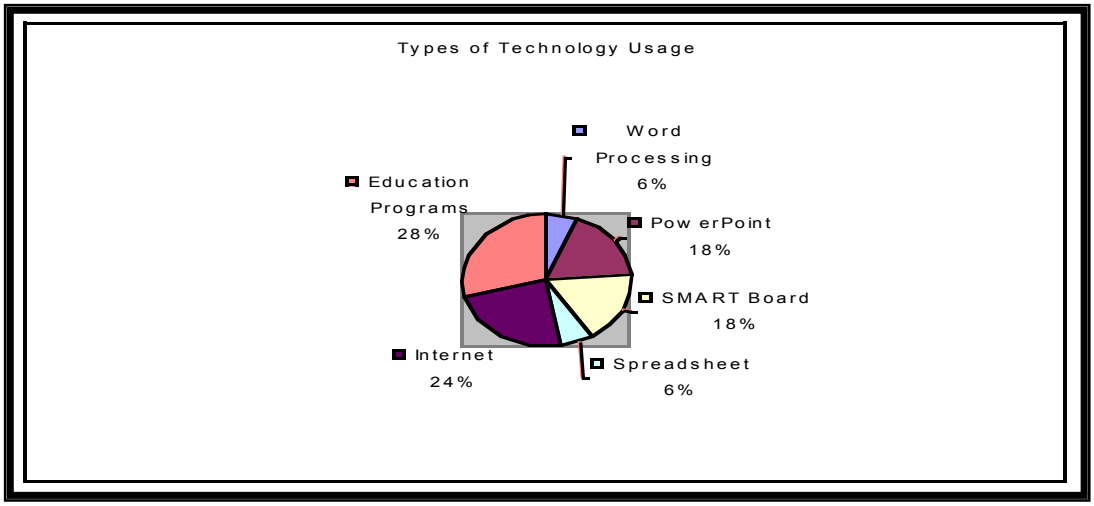

Fig. B: Types of technology used within elementary classrooms.

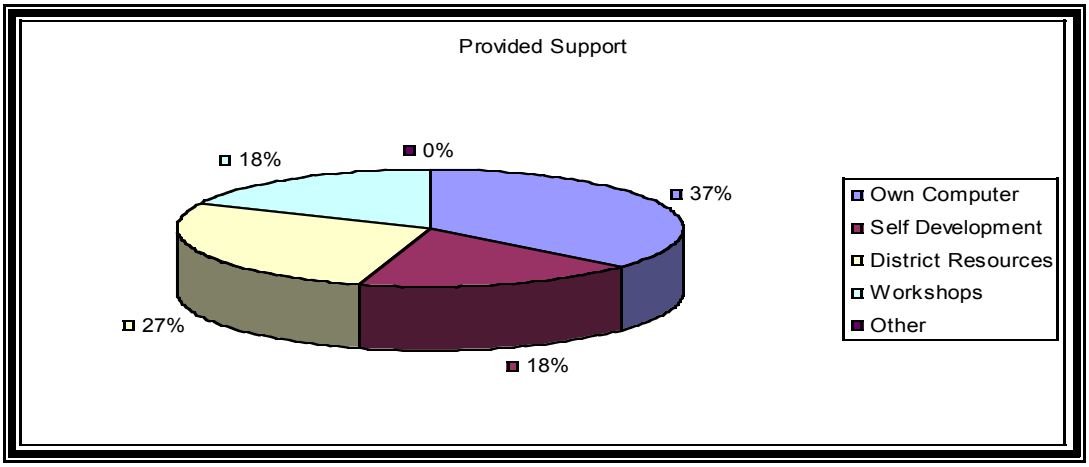

Fig. C: Different types of support provided by the school district.

V. a. First case study

Through the interview, process specific information was learned pertaining to the individual teacher and their method of integrating technology into their classroom. Starting with the teacher in the first grade, she had taught for 19 years at the time of this study. Her philosophy on education was that all students can learn. She believes in Gardner's multiple intelligence methods of education and enhancing students' strengths and supporting students through their weaknesses. As an educator, she tried her best to meet the needs of each of her students. The majority of her technology integration was done through her SMART Board. In the morning, the students would sign-in by using the classroom list then moving their name to their lunch choice for the day. The SMART Board was used for morning meeting. The teacher facilitates the conversation through their morning message

and then through calendar kids. In calendar kids, the teacher opens weather.com to show the current weather for the area and students discuss the recent weather patterns. All of the information has the capability of being saved for future references. Along with using the SMART Board the students had access to a mobile laptop cart, which the teacher used 2-3 days a week, typically during centers. While students work on the grade level laptops, they were using Odyssey or a free educational website (pbs.org or discoverykids.com). On average, she spends about 30-45 minutes a day using her SMART Board. Students also used the SMART Board independently during their center time. They used the SMART Board to practice their weekly vocabulary words through a series of different games. These games were created by the two first grade teachers. The students have an option of throwing their words into a whirling blender (students read the word out loud and if it was a spelling word, they would drag the word into a spiraling blender), they could build their words using single letters, follow the cause and effect (the effect section is hidden and students have to drag the answer out), name and tell parts of a sentence (students dissect sentences to distinguish the different parts of a sentence), and student creativity (students have a blank page where they can write their own sentences).

In the district, she felt the need to update their technology. In particular, her classroom had a SMART Board running off of Microsoft 2000, which at times could inhibit her use of the SMART Board because it is rather slow, not to mention their internet connect is very slow. The more people who were on the internet, the slower the connection was with other people trying to use the internet. The district had wireless laptops for the first grade, but the walls were so thick that the laptops were not able to connect to the internet unless they were right near the doorway to the classroom. For the SMART Boards, a day and half of training was provided to the teacher receiving SMART Boards; they had the ability to have someone check in with them and assist them if they needed. The struggle with this concept was that the IT professional was only able to meet with the teachers in the morning because he worked out of BOCES which is a 45 minutes drive from the district. This created a lot of self development for her with the new SMART Board; along with self development created a lot of frustration. The support that she would have liked to have for the SMART Board was not provided. She had no experience with a SMART Board before the district provided one to her. She claims her technology skills were not the best, and she struggled using her classroom computer.

Their October Superintendent Day dealt with new technology and different programs they could integrate into their classroom. Several of the district's technology teachers showed them Google Earth and Global special learning. She said everyone seemed to enjoy the new technology being introduced to them, but they were told during their training that they should not use these programs in their classrooms because their internet band would not be able to support the information being processed. It would also greatly slow down the internet connection for everyone in the district. Needless to say, she felt the day was a waste of time if they were not able to take the information learned and apply it to their classrooms. The first grade teacher likes the idea of technology, but believes that it should not take over the classroom. Students should be able to use books and write assignments. Students benefit more from going through this process than using technology to do most of the work for them.

V. b. Second case study

The fourth grade teacher used a substantial amount of technology in her classroom. She kept all of her grades electronically in Microsoft Excel. She also had a classroom website, where she kept information about current projects going on the classroom and updates the homework assignments daily. She used e-mail to connect with the majority of her parents, but prefers to call them and speak with them personally. She used her SMART Board at every opportunity she could and enjoyed developing new programs for students to use on the SMART Board.

Similar to the first grade teacher, the fourth grade teacher used ~~s~~the SMART Board in the morning for students to choose their lunch for the day. Lists of steps were provided to students to be completed on the SMART Board as part of their morning routine. During their Language Arts section, students used an online program with their weekly vocabulary words. The game was set up like a slot machine with only their vocabulary words, the teacher pre-sets the words into the website and from there the website sets up revolving words. Students used this during their Language Art centers in the morning.

The fourth grade teacher jumped on board with the SMART Board as soon as the district offered the opportunity to teachers. She also studied integrating technology into classrooms for a Masters degree. She feels she has received a great deal of support from the district with the integration of the SMART Board. The IT professional from BOCES seemed to work with her on any difficult situation she encountered throughout the process. She has done a lot of self-development with the SMART Board. "You learn technology better by sitting down and playing around with it," the fourth grade teacher said. She works closely with the other fourth grade teacher who volunteered to have the SMART Board in the classroom. They collaborate on different programs and if they learn something new they share the information among themselves. She does feel the computer technology supporting the SMART Board is outdated and has caused her not to use it at times. The computer projecting onto the SMART Board is dated back to 2000 and using Microsoft 2000. The information is outdated and at times painfully slow to use. The internet connection is another story. If a lot of people are on the internet, it bogs down the speed causing it not to work or to work very slowly. This has been a consistent complaint from most of the teachers within the district according to the fourth grade teacher. She uses her SMART Board and only one computer was provided in the room. She has the luxury of signing out a mobile laptop cart for the class, but rarely takes advantage of the opportunity. She typically brings the students down to the lab and has the class do their work there; it is easier than setting the laptops up and waiting for them to warm up. When students are using the computer, they typically use their Educational programs or Microsoft Word to write papers. She enjoys using her SMART Board and feels every teacher should have one in their classroom. This is something the district is considering, but lacking the funding to doing so. The fourth grade teacher feels it is important for her students to use technology because our society is technologically driven. She tries to incorporate technology as much as she can within her lessons.

VI. Discussion

The purpose of this research was to obtain a better understanding of educational technology integrated into elementary classrooms. It stems back to my fascination with technology. I have always had a passion to learn technology and how it functions. As an undergraduate at St. John Fisher College, I

was one class short of an Educational Technology Minor. Through the series of courses I took, my curiosity and creativity with technology flourished. I had experienced many different classrooms with various types of technology integration into teachers' teaching methods. Some teachers used their computers strictly as bookends, while others brought in PowerPoint presentations, and others wanted to use computers; but the district did not have the resources to provide adequate technology. With this wide variety of technology used, my fascination grew about a school district in Central, New York and how they were integrating technology into their classrooms. Needless to say, this is where my research started and ended with Hobart Central School District[1].

"[I]t is possible that a poor attitude toward technology or a fear of using technology causes teachers to implement lessons that are difference from their nontechnology lessons" (Judson, 2006). Technology is looked at as if it's a burning ball of fire and if you touch it, it may burn you. That is not the truth with most classrooms. Districts are integrating technology into their classrooms to give students a jump-start on our technologically based society. My research led me to a small district in Hobart Central School District. I wanted to determine the type of technology or if any technology was being integrated into Green Elementary[2] classrooms. To my amazement, numerous amounts of technology were being integrated, not only in the classroom but in Green Elementary.

Green Elementary has various technologies to offer their young students. Offered to all students are two classroom labs, holding approximately 20-25 computers. Teachers have the ability to reserve one lab to have their students work on research projects or practice skills. The other lab was used as a special for students during the week. A technology teacher has the students work on various skills or typing skills. The classroom teacher can suggest different items they would like their students to practice while in the lab. Another lab that is offered to students, but only students in second grade is the mobile laptop lab. Only teachers teaching second grade have the ability to reserve all or some of the laptops for students to work from. Most of the time teachers will reserve two or three laptops to be used during centers.

Green Elementary recently implemented SMART Boards in their classrooms, but not all classrooms have the luxury of having a SMART Board. Two teachers per grade level were given a SMART Board to try. The district wanted to experiment and then observe the benefits of having SMART Boards in classrooms. Teachers received a little training on their SMART Boards and then were asked to integrate their knowledge into the classroom. If teachers needed further assistance with their SMART Board, a technology consultant was brought in from outside the district. For the most part, teachers were left wide-open with different ideas and questions on the use of their SMART Boards. After practicing with the SMART Boards, teachers had a better grasp of how to integrate their SMART Boards.

After discovering that Hobart Central School district had this large amount of technology, I was quite excited to start my research. I had a large number of questions I wanted to ask the teachers about their different methods of using the SMART Boards and their labs offered to them. Each of the teachers I observed used their SMART Board or computer time in a similar fashion. Part of their morning routine was to use the SMART Board for morning meeting. Students would sit on the rug, facing the SMART Board to review the weather, write their morning statement, or drag their name to the lunch item they desired that particular day. After their morning meeting, students

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1 Name of district has been change to protect the privacy of the school district.

2 Name of elementary school has been changed to protect the privacy of the school district.

would use the SMART Board during their center time. They would practice their spelling words or writing sentences on the SMART Board. Students enjoyed using the SMART Board and the board received their full attention. Some students would bicker over using the board and then quickly draw a conclusion to how they would share it.

Even though my research had an abundant amount of positive aspects, there is a significant amount of limitations. Starting my initial research was difficult; I had difficulty reaching the administrators. The amount of time it took me to begin my research caused me to miss their monthly staff meeting, which is the place I want to implement the questionnaire. This meant I had to e-mail the questionnaire; a change from my original plan on involving all the teachers in Green Elementary. This was not how I wanted to send my questionnaire. If I was able to attend their staff meeting, I would have been able to have all the teachers fill it out at that time. I gave the teachers a couple of days to respond to my e-mail. I had a only a small number of teachers respond, six of thirty-four teachers. I still needed to observe, interview teachers. Again, I attempted to contact teachers for interviews and potentially to observe them integrating technology in their classroom. I contacted three teachers, again, and again, and finally a fourth grade teacher returned my e-mail. This process took another week to a week and a half! This particular fourth grade teacher, Betty Smith[3] was one of two teachers with a SMART Board in their classroom. Betty Smith performed the interview and the classroom observation for my research. Smith had great insight into the use of technology in her classroom and the district. She provides some critical information for my research. I observed Smith for a morning using the different technologies in her classroom.

After meeting with the Smith, I needed to find another teacher to observe and observe quickly because my time was running low. I contacted a second grade teacher, Jane Brown[4] to see if she would potentially interview and then allow me to observe her integrating technology in her classroom. Brown allowed me to come into her classroom. This took another week and a couple of days to connect with her. Brown and I sat down for her interview in the morning and then I observed her the rest of the morning into the afternoon. Again, Brown used technology in a similar fashion as Betty Smith. The only difference was Brown had access to the mobile laptop cart and Smith did not. Brown dragged three bulky laptops in during center time. Students worked independently on their computers and were fully engrossed in their work.

I had several positive and negative aspects of working with teachers in Hobart Central School District. The amount of time spent contacting and connecting with teachers was difficult and challenging, since I did not have a lot of time to perform my research in the start. Another difficult aspect of my research was the number of participants participating in my research. The small geographical sample yielded only a small fraction of results.

The data collected from this research is significant and provides information into what one district is able to provide for their students. My question prompted insights into, how technology is being integrated into elementary classrooms. The district provided enough facts for me to sufficiently answer my question. The teachers informed me during my observation that they typically used their technology or SMART Boards in the same manner on a daily basis. The information that students were learning would change, but the programs used would remain the same.

The significant data collected during my research was the type of technology used in Green

3 Name of fourth grade teacher has been changed to protect her privacy.

4 Name of second grade teacher has been changed to protect her privacy.

Elementary, the numerous varieties Green Elementary offered to their students and their staff, the attempts they are making toward become an educational technology school, and the set backs that are causing them to not reach that goal. It amazed me that this small district had such a large amount of technology being offered.

Teachers that have been in the education field for extensive amount of time tend to stay away from integrating technology (El-Amin, Fordham, Hammond, O'Bannon, Vannetta, Gruber, 2002) had veteran teachers and pre-service teacher work together. The pre-service teachers worked with the veteran teachers to integrate technology into their classrooms. The technology they used in their classroom is similar to the technology I found teachers using. Their use of PowerPoint, SMART Boards, and computers were not used in an identical manner, but similar. In my research, I did find information pertaining to veteran teachers and their fear of using technology. Franklin (2007) explained that "84% of the teachers felt either well or very well prepared to integrate technology into curriculum, and that they were able to overcome the typical barriers to computer use in elementary classrooms." This theory applied to my research; most of the teachers using technology in Green Elementary were teachers who graduated less than 10 years ago with the exception of the second grade teacher, Jane Brown. Brown has been teaching for 25 years. She did express complications and frustrations with learning the technology, but similar to El-min et. al (2002) with assistance provided by the technology consultant and the by other teachers, she was able to work through the problems.

Overall, the research was beneficial for me to see how primary teachers are integrating technology into their elementary classrooms and the obstacles and struggles they have endured to get to their current point. For the amount of time that I did spend in Green Elementary, I feel the information enhanced my understanding of infusing technology in the classroom. I was inspired to start brainstorming different ideas of how I would like to integrate technology and then sharethat information with fellow colleagues.

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PRESERVATION OF THE PANTANAL: CURRENT THREATS AND CONSERVATION INITIATIVES

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The Pantanal is the largest wetland system on Earth and is approximately 14,000,000 hectares of swamps, lakes, rivers and floodplains in Bolivia, Brazil, and Paraguay (Eberhard, 2000). Roughly 70% of the wetland system is found in the southwestern Brazilian states of Mato, Grosso, and Mato Grosso do Sul. The Pantanal is considered a "mosaic" of overlapping ecosystems, with each sub-region being characterized by different species of flora and fauna (Eberhard, 2000). The flood-and-drought cycle distinctive to the Pantanal maintains the ecological and environmental diversity found within the region and an estimated 90,000 spp. of plants, 124 spp. of mammals, 463 spp. of birds, 177 spp. of reptiles, 41 spp. of amphibians and numerous terrestrial invertebrate spp. inhabit the Pantanal (Harris et al., 2005). Although the Pantanal was designated a Biosphere Reserve in 2000, data and material on the biodiversity found within the floodplain appears to be limited. Furthermore, the equilibrium between the sub-regions of the Pantanal, which is directly influenced by the regions hydrology, appears to be threatened by increasing anthropogenic activities both in the interior and in the highlands surrounding the floodplain (Harris et al., 2005). Nonetheless, it appears that cooperation between governments, researchers, conservationists, and society is needed in order to maintain the biodiversity of the Pantanal. This research was a requisite of the BIO 393 International Environmental Studies: Brazilian Pantanal course in spring 2009.

1. Introduction

The large Upper Paraguay River Basin, characterized by two major landscapes - the highlands and the floodplains, is millions of years old and is located in portions of Brazil, Paraguay, Bolivia and Argentina (Segovia, 2000; Eberhard, 2000). Multiple rivers began flowing into the region at some point in time and completely filled the river basin (Eberhard, 2000). Over thousands of years sedimentation was transferred into the system from the surrounding highland region and the distance between the soil and the water's surface decreased. Sand and silts built up, creating new landscapes and conditions in which flora and fauna could successfully survive (Eberhard, 2000).

The Pantanal, a term derived from Pântano, or marsh, is the largest wetland system in the world (Lima Barros Dolabella, 2000) and is comprised of roughly 14,000,000 hectares of lakes, swamps, floodplains, and rivers in Brazil, Bolivia and Paraguay (Eberhard, 2000). Approximately 70% of the wetland is located in two southwestern states of Brazil: Mato Grosso and Mato Grosso do Sul (Lima Barros Dolabella, 2000). The Pantanal is often considered a "mosaic" of overlapping ecosystems with each sub-region being inhabited by different species of flora and fauna (Eberhard, 2000). A rainy season characterizes both the Upper Paraguay River Basin highlands (1,200 millimeters per year) and the Pantanal lowlands (800 millimeters per year); however, the majority

of the precipitation falls at higher elevations. Precipitation that falls at higher elevations washes into the lowlands and the basin fills because water exits the system slowly due to narrow river mouths in the south. Low soil permeability and low declivity also appear to contribute to flooding in the region (Eberhard, 2000).

The flood-and-drought cycle characteristic to the Pantanal is a continuous process and maintains the biodiversity found within the Pantanal (Eberhard, 2000). An estimated 90,000 species of plants and varieties of birds, mammals, reptiles, fish, and amphibians inhabit the floodplains (Segovia, 2000). While natural sedimentation processes are responsible for the diversity found within the region, human activities appear to be accelerating the sedimentation process and may be harmful to the delicate balance between ecosystems (Eberhard, 2000). This paper outlines (1) the current and future threats to the Pantanal, (2) the current conservation status of the region, and (3) examines the major conservation initiatives that have occurred within the region. This paper will also discuss initiatives that may need to be implemented in the future in order to preserve the Pantanal.

I. A Complex of Ecosystems

The Pantanal should be referred to as a "complex of ecosystems" because the basin is comprised of a number of diverse habitats (Eberhard, 2000). Cambara Forests, the fresh water and salt water lakes of *Pantanal da Nhecolândia*, and the native grasslands are only a few of the ecological sub-regions present in the floodplain. The ecological and environmental diversity present in the Pantanal appears to be directly related to water level and the period of time that the water covers an area. Plains and grasslands inhabited by grazing mammals characterize the Pantanal throughout the dry season. However, during the wet season, the plains flood and the normally poor soil of the region receives nutrients and bio-mass from outside the system. An alteration of the hydrology may possibly change the entire region (Eberhard, 2000).

The Pantanal is not a climax system; it is a young and dynamic system (Eberhard, 2000). Landscape transformations characteristic to the Pantanal, such as a change in a river path, appear to occur often and in short periods of time due to the introduction of new sediments and silts into the system (Eberhard, 2000). River dynamics appear to be responsible for the landscapes and geomorphology of the region (Eberhard, 2000). Landscapes may influence river dynamics by creating a physical barrier which changes the path of water flow, a natural process which occurs in both large and small rivers yearly (Eberhard, 2000). However, anthropogenic activities in regions surrounding the Pantanal appear to be increasing the rate at which the natural process of sedimentation build-up occurs in the basin (Eberhard, 2000).

II. Ecological Importance of the Pantanal

The Pantanal contains an enormous variety of fauna. Approximately 124 species of mammals are found in the Pantanal, including several threatened species, such as the marsh deer (*Blastocerus dichotomus*), the Pampas deer (*Ozotoceros bezoarticus*), the jaguar (*Panthera onca*), and the giant otter (*Pteronura brasiliensis*) (Harris et al., 2005). Approximately 63 spp. of bats, such as the Lesser Bulldog bat (*Noctilio albiventris*) and the Pale Spear-nosed bat (*Phyllostomus discolor*), play an important role in the pollination of flowers and seed dispersal in the wetland system (Fischer, Araujo

& Graciolli, 2009). Approximately 463 species of birds inhabit the wetland system, and of these, 117 species are considered threatened; the most famous is the Hyacinth Macaw (*Anodorhynchus hyacinthinus*) (Harris et al., 2005). The Pantanal has also been identified as a migratory route for many bird species traveling from both the southern and northern hemispheres, as well as the Atlantic Forest. Approximately 177 reptiles, 41 amphibians, and more than 260 fish species have been identified in the Pantanal (Harris et al., 2005). Numerable species of terrestrial invertebrates are also found in the floodplain, 42% of which are butterflies (Lewinsohn, Freitas & Prado, 2005).

The Pantanal was designated a Biosphere Reserve by the U.N. Educational, Scientific, and Cultural Organization in 2000 (Harris et al., 2005). Despite its identification as an area with highest priority for conservation, material and data on the biodiversity found within the wetland system appears to be limited. Consequently, the equilibrium between the sub-regions of the Pantanal, which is directly influenced by water dynamics, appears to be threatened by recent anthropogenic activity both in the interior and in the highlands surrounding the floodplain (Harris et al., 2005).

III. Current and Future Threats to the Pantanal

III.a. *Human impacts*

The Bolivia and Paraguay portions of the Pantanal appear to be well conserved because of the low population density in and surrounding both areas (Eberhard, 2000). In contrast, the Brazilian floodplain appears to be less intact due to anthropogenic activities. Cattle ranching was established in the Brazilian Pantanal approximately 200 to 300 years ago. As well, over the last 25 to 30 years there has been an explosion in the human population inhabiting the highlands that border the floodplain. The recent population growth is likely due to the Brazilian government policy, "*Rumo ao Oeste*" (In the Direction of the West), which dictated all entrances into the Amazon region were to be conducted through the state of Mato Grosso. Also, colonization of the region in the last 25 years occurred horizontally and monocultures of exotic crops have been substituted for the natural biodiversity (Eberhard, 2000).

III.b. *Habitat loss*

Deforestation within the Pantanal and in the surrounding highlands appears to be a critical problem (Harris et al., 2005). An estimated 40% of natural forests and grasslands have been replaced by exotic grasses which cattle ranchers use to nourish herds. Burning, a practice used to renew pastures, control weeds, and limit cattle pests (Harris et al., 2005), is problematic to the Pantanal (Eberhard, 2000). Most fires are human-induced and occur in regions surrounding the Pantanal throughout September and October, specifically the state of Mato Grosso and Western Brazil (Eberhard, 2000). Smoke is carried by the wind, penetrating the lowlands and appears to be harmful to the diverse flora and fauna of the region (Eberhard, 2000). The frequency of burning in the interior of the Pantanal appears to also have increased in recent years and may lead to wild fires within the floodplain (Harris et al., 2005). While the long-term effect of exotic grasses is still under study, researches have noted a decrease in the frequency of small mammals in heavily grazed areas (Harris et al., 2005).

III.c. *Erosion*

Deforestation in the highlands has led to severe erosion, causing sediment build-up in the lowlands which appear to have altered the water dynamics of the Pantanal (Harris et al., 2005). Sufficient laws stating that settlements must maintain forests on the edges of rivers exist; however, enforcement is minimal and many villages cut the vegetation up to the riverbanks (Eberhard, 2000). The loss of natural barriers has resulted in the substantial erosion of soil, and rivers which were at one time wide and deep are now narrow, shallow channels (Eberhard, 2000).

III.d. *Sewage and pollution*

Garbage and waste, containing heavy metals and toxins flow from bordering cities into the Pantanal via tributaries and major rivers (Eberhard, 2000). Cuiabá and Várzea Grande have a combined population of approximately one million and border the northern portion of the Pantanal. Both cities lack sewage treatment plants, and sewage runs directly into the Cuiabá River, a tributary of the Paraguay River (Eberhard, 2000).

Pesticides draining into the system from the highlands also appear to be a major threat to the Pantanal (Harris et al., 2005). Toxic stillage, which is dumped into streams and rivers by alcohol distilleries, results in the death of fish and cattle (Harris et al., 2005). Mercury, used in gold mining in the past, has been detected within the Pantanal (Eberhard, 2000; Harris et al., 2005).

III.e. *Development projects*

Large industrial initiatives in the interior appear to threaten the Pantanal (Harris et al., 2005). The Manso hydroelectric dam, with its associated 40,000 hectare reservoir, appears to have altered the water dynamics of the Cuiabá River (Ferraz de Lima, 2000). The Manso River provides approximately 60% of the water that flows into the Cuiabá River and because 80% of the fish species found in the Pantanal migrate (Ferraz de Lima, 2000), an immediate effect on fish populations was noted after the dams completion in 2000 (Harris et al., 2005).

The Hidrovia Project of the mid-1990's proposed that the course of the Paraguay River be altered by dredging in order to facilitate the passage of large agricultural transport ships (Harris et al., 2005). The project was developed by Argentina, Bolivia, Brazil, Paraguay, and Uruguay and was supported by the Inter-American Development Bank (Harris et al., 2005). However, the Paraguay River is not a large river, and projects to change the path of the river would likely alter the hydrology of the floodplain (Eberhard, 2000). The project was abandoned in 1998 after model predictions suggested that the Hidrovia would likely cause large-scale disruptions amongst the wetland's fragile ecosystems (Gottgens et al., 2001). The Brazil-Bolivia natural gas pipeline will likely complement the already increasing mining activities in the Urucum Mountains of Mato Grosso do Sul (Harris et al., 2005). Petrochemical and steelwork projects directed toward the interior appear to be in development. All projects will likely be sources of pollution; direct threats to the health of the Pantanal (Harris et al., 2005).

III.f. *Hunting*

Hunting, in past years, was a major concern within the Pantanal (Harris et al., 2005). The Paraguayan caiman (*Caiman crocodilus yacare*) was hunted extensively, despite Brazilian government bans and

caiman poaching subsided only after a drop in skin market price. Giant Otters were hunted almost to extinction within the Pantanal throughout the 1960's; however, the population appears to be recovering. Currently, poaching appears to be limited within the Pantanal except for the persecution of the jaguar and puma (*Puma concolor*) by cattle ranchers (Harris et al., 2005).

III.g. *Invasive species*:

The Chinese golden mussel (*Limnoperna fortunei*) and the African giant snail (*Achatina fulica*) are invasive species present in the Pantanal which appear to be a concern for biodiversity conservation, economic development, and public health within the wetland (Harris et al., 2005). Feral pigs were introduced approximately 100 years ago and the effects of the invasive species on peccaries are unknown. The introduction of two exotic fishes, the tucunaré and the tambaqui, has resulted in the widespread extinction of many native fish species in the Pantanal. Feral water buffalo (*Bubalus bubalis*) consume and trample flora along the riverbanks; however, the long-term impacts of the exotic species is unknown (Harris et al., 2005).

IV. Current Conservation Status

Approximately 2.5% of the Pantanal is protected within national and state parks and in private property (Harris et al., 2005). The areas protect a fraction of the diverse sub-regions found within the wetland system. Cattle ranching remains the predominant agricultural activity within the Pantanal. Low human population and decreased hunting activities also appear reasons much of the diversity of species remains intact within the wetland system, especially in Bolivia and Paraguay. As well, feral species are often hunted over native species. However, cattle ranching, which was restricted largely in the past by cultural factors, and irrigated agricultural practices appear to be increasing (Harris et al., 2005).

V. Case Studies: Protected Areas of the Pantanal in Brazil and Bolivia

V.a. *Areas of protection Brazil*

There are two federally protected areas in Brazil: the Pantanal National Park and the Taiamã Ecological Station (Ferraz de Lima, 2000). Both areas are under supervision by the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), a federal agency. Approximately 210,900 hectares of the Pantanal is protected by IBAMA, while 162,785 hectares are captured by RPPNs (Private Reserves of Natural Heritage). Relative to the size of the Pantanal (14,000,000 hectares) the total protected area within the Brazilian Pantanal is minimal. Also, the reserves capture only a limited portion of the Pantanal's biodiversity, and the value of the areas as refuges for terrestrial animals is debated since both areas are flooded by high waters (Ferraz de Lima, 2000).

V.b. *Pantanal national park*

The Pantanal National Park, which was created by the Brazilian government via land purchases, is approximately 140,000 hectares and is located at the intersection of the Paraguay River and

Cuiabá/São Lourenço rivers (Ferraz de Lima, 2000). The national park occupies less than one percent of the Brazilian Pantanal, and in terms of preservation of biodiversity, the region represents a limited portion of the Pantanal's diverse ecosystems. However, it is significant that Ecotrópica – a private, Brazilian organization – gained ownership to the lands surrounding the National Park and are complementing the parks preservations efforts. The surrounding lands contain biodiversity not captured within the National Park (Ferraz de Lima, 2000).

V.c. *Areas of private protection*

The number of federal and state government protected areas in the Pantanal is limited (Ferraz de Lima, 2000). Areas of the Pantanal that are under the protection of the Brazilian government can be referred to as either indirect-use units of conservation or direct-use units of conservation. Indirect-use conservation units are restricted completely too any use of natural resources found in the protected areas. Areas considered indirect-use include National Parks (PARNA), Ecological Stations (ESEC), Ecological Reservations (RESEC), Biological Reservations (REBIO), and Areas of Important Ecological Interest (ARIES). In contrast, the use of natural resources is allowed in direct-use conservation units; however, resource use is planned and regulated. Direct-use conservation units include Areas of Environmental Preservation (APA), National Forests (FLONA), and Reservation for Exploration (REFLEX) (Ferraz de Lima, 2000).

In order to aid conservation efforts, the Brazilian government established Private Reserves of Natural Heritage, RPPN (Ferraz de Lima, 2000). The RPPNs were established by the Federal Ordinance No. 98.914, of January 31, 1990, and guidelines for the recognition of RPPNs were created by the Federal Ordinance No. 1922 in June 5, 1996. Although the establishment of an area as an RPPN restricts the use of the land, landowners are given tax breaks, land management assistance, and protection by the Federal government. In order to qualify for RPPN status an area must contain beautiful landscapes, be significant in terms of protection of biodiversity, or offer conditions to justify environmental protection (Ferraz de Lima, 2000).

Both Ecotópica and Trade Social Service (SESC) maintain private reserves in the Pantanal (Ferraz de Lima, 2000). Ecotópica RPPNs include the Dorochê Ranch (26,518 hectares), Acurizal Farm (13,200 hectares), and Penha Farm (13,100 hectares). Trade Social Service maintains two RPPNs, 49,485 hectares and 38, 385 hectares, in regions influence by the Cuiabá River. Although private protected lands have been established, in order to increase the range of biodiversity captured within protected reserves it will be necessary to increase the number of RPPNs (Ferraz de Lima, 2000).

V.d. *Areas of protection Bolivia*

The Bolivian portion of the Pantanal, located in the far eastern portion of the state of Santa Cruz, is the best preserved portion of the wetland system (Montaño, 2000). The region is bounded by and connected to three endangered forests: dry chiquitano, dense, and chaco. The Soil Use Plan (PLUS) identified two priority zones in 1995 in need of protection: the area of Otuquis and the area of San Matías. The Noel Kempff Mercado Museum of Natural History, based on field observations, historical records, satellite images, and interviews with locals, prepared a proposal for the establishment of two legally protected areas in Santa Cruz (Montaño, 2000).

In July, 1997, via Supreme Decrees 24762 and 24734, the Bolivian government established two

protected areas: the Pantanal de Otuquis National Park and Natural Area of Integrated Management (1,005,950 hectares) and the San Matías Natural Area of Integrated Management (2,918,500 hectares) (Montaño, 2000).

V.e. *Otuquis National Park*

The National Park comprises the major portion, 903,350 hectares, of the Otuquis protected area, while the Natural Area of Integrated Management (ANMI) constitutes 102,600 hectares (Montaño, 2000). The Park and ANMI both reside near major cities, Puerto Suaréz and Puerto Quijarro, and have the potential to become tourist attractions. Approximately 44% of the Otuquis protected area is deep wetlands, and is inhabited by numerous species of birds and large mammals. Carandy palms (*Copernicia australis*) and rare Abayoy forests characterize the Otuquis protected area. Contrasting the Brazilian Pantanal, few private properties exist, and industrial activity is limited in the interior (Montaño, 2000).

V.f. *San Matías ANMI*

San Matías covers 2,918,500 hectares and although the area is less than 5% deep wetland the region is more seasonally inundated than the Otuquis protected area (Montaño, 2000). Dry chiquitano and dense forests cover approximately 50% of San Matías (Montaño, 2000).

VI. Major Conservation Initiatives

The Brazilian Agricultural Research Corporation (EMBRAPA) established a research station in the Pantanal during the 1970's and has focused on finding alternatives and strategies for the sustainable development of the floodplains (Harris et al., 2005). The Brazilian corporation continues to monitor and manage fish and wildlife species and promotes long-term research on the ecological dynamics and conservation of the region. The Ministry of the Environment developed the Program for the Sustainable Development of the Pantanal in 1997 to improve the sustainable use of resources in the region. The project directly and indirectly affected 80 municipalities and 39 native villages and was funded by the Brazilian government, the Japan Bank for International Cooperation, and the Inter-American Development Bank (Harris et al., 2005).

The First International Congress on Conservation of the Pantanal (INTERPAN) was held in 1989 in Campo Grande; Mato Grosso do Sul (Eberhard, 2000). Also in 1989, a Government Center for Conservation Data was established with the support of the World Wildlife Fund and The Nature Conservancy (Harris et al., 2005). The database focuses on sub-region and species diversity within the Pantanal, and resulted in the passing of Law 5993 in 1992, which established 19 priority zones for environmental conservation in the floodplains (Harris et al., 2005).

In 1998 the Brazilian government sponsored the Cerrado-Pantanal Conservation Priority-Setting Workshop where the need for more protected and connected areas was suggested and an initial corridor design for the Pantanal was established (Harris et al., 2005). Two state parks, Rio Negro, and Nascentes do Taquari, along with a national park, Serra da Bodoquena, were created during the workshop. Conservation International and the U.S. Agency for International Development (USAID) along with the Brazilian government and local organizations established a biodiversity corridor connecting the cerrado and the Pantanal (Harris et al., 2005).

Two projects focused on well-known species are to be noted (Harris et al., 2005). The Hyacinth Macaw Project has established local environmental education and been monitoring the species within the Pantanal since 1991. The Hyacinth Macaw population, estimated to be approximately 5000 individuals, appears to be increasing in the area since the project began. The second project, the Jaguar Conservation Fund, provides compensation to ranchers for cattle losses and promotes environmental awareness among local populations. Private landowners have benefited from government incentives to preserve land and approximately 2618 km^2 of the Pantanal is protected in RRPNs. The Private Protected Areas Association (REPAMs) was established in 2002 and will further stimulate conservation of the area (Harris et al., 2005).

VII. The Future

Policy leaders are currently focusing on the Pantanal in terms of 'sustainable development'; however, society in general, appears to be focused solely on the development portion of the statement (Eberhard, 2000). In order to reach 'sustainable development' it appears that society will need to replace old technologies with new technologies and discover new ways to become self-sufficient (Eberhard, 2000). It is apparent that the establishment of more government and private lands is needed in order to capture and protect a greater amount of biodiversity (Ferraz de Lima, 2000; Montaño, 2000; Harris et al. 2005). Also, in order to form a more complete conservation effort governments and conservationists may need to look outside the floodplain into the surrounding highland regions, areas which directly influence the Pantanal (Ferraz de Lima, 2000). Conservationists may also need to study the practices and habits of the individuals who have resided in the region for hundreds of years because these people have left the Pantanal in good condition (Eberhard, 2000). Local communities in the Pantanal may also be more likely to accept recommendations from conservationists if they directly participated in the collection of research (Calheiros, Seidl & Ferreira, 2000).

The continued collaboration between private landowners and government agencies appears to be necessary in order to ensure that conservation and the sustainable development of the Pantanal occurs (Ferraz de Lima, 2000; Harris et al., 2005). Because the Pantanal is in Brazil, Bolivia and Paraguay, cooperation between governments is vital in order to develop integrated actions towards conservation (Ferraz de Lima, 2000). However, individuals in society are responsible for implementing the necessary changes needed to preserve the Pantanal, not just the government (Eberhard, 2000; Ferraz de Lima, 2000). In order for change to occur conservationists need to help politicians, not only by providing research, but also by supporting government officials (Eberhard, 2000; Montaño, 2000). As well, environmental education of local children and policy makers may also play a key role in the conservation of the Pantanal (Eberhard, 2000; Montaño, 2000; Harris et al. 2005). Nonetheless, it appears that a multifaceted effort is needed in order to preserve the ecological and environmental diversity of the Pantanal.

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TELEVISION AND ITS EFFECTS ON ADOLESCENT STUDENTS' PERCEPTIONS OF SCHOOLING

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This study explores how depictions of teachers, administrators, and schools in television programs influences adolescent students. The findings of a literature review on the effects of depictions of schooling in media on adolescents is compared with the findings of surveys collected by a student teacher.

1. Introduction

The effect that the media has on the United States is undeniable. You can see it everywhere you look, from the girls getting thinner and thinner to be more like the girls on *America's Next Top Model*, men getting more and more muscular and physically larger to look more like celebrities Brad Pitt and Matt Damon. Furthermore, you can see the media everywhere from t-shirts with the most quotable lines from the latest Will Ferrell movie, to the constant references from *Family Guy*, *The Simpsons*, or *The Daily Show* we hear in the halls of secondary schools on a daily basis.

Adolescent age students are more susceptible to these influences than almost any other group for multiple reasons. First, they are constantly submerged in pop culture and media from the time they wake up until the time they go to sleep. Adolescent students watch on average three to five hours of television on school days (Amadeo et al, 2004), in addition to the time they spend talking about television at school, and on the internet each day. Second, students' cognitive thinking skills as well as self-identity are not fully formed at this age (Wade and Tavris, 2005). Third, students do not spend nearly the amount of time talking to parents that they do in front of the television. In fact, by age five a child has already spent more time watching television than they will spend talking to a parent over the rest of their life (Bigelow and Peterson, 2002). The constant bombardment of the media on our students has affected their dispositions on everything from politics and history to schooling. Throughout my student teaching placements in a rural middle school and a rural high school I constantly heard "you're not as cool as the student teachers on TV" and "I thought college was all about partying." These comments from students show that they consciously and subconsciously compare their own schooling experiences with what they see on television. This makes one wonder what their views of schooling are on the basis of television shows and how these views differ from their actual school experiences. Through my research I intend to identify how television shows affect our students' perceptions and attitudes towards schooling.

The key questions that my research addresses are "What are students' views of schools as a result of being exposed to the media? What are the realities they see in schools? How are the two mismatched?" In addition, sub-questions to the central research questions are:

a. What television shows have the greatest impact on adolescent students' views of school?

b. How does television affect students' views and opinions of administrators, teachers, other students, and school resources?

c. How does television affect students' opinions and views of how teachers should teach and/or interact with students in class?

In order to understand what their views are, where these views come from and how these views compare with their actual school experiences, it is critical to talk to the students. Students believe that the images they see on shows like *Saved by the Bell* and *Boston Public,* and in movies like *Freedom Writers* and *The Substitute* are the reality of what schools should be like or are like in other places. However, not every teacher is striving to change the lives of their students in inner city schools, not every building administrator is the flighty and goofy man that Mr. Belding is, and not every coach is going to be the strong father figure you see in a film like *Remember the Titans*. I hypothesize that there are significant differences between what students expect to find and what they actually find in school. Moreover, these differences create tensions and issues that classroom teachers have to address if they are to be successful.

I believe that with this research I, as a teacher who hopes to work at the eighth-grade level, will be able to address some of the attitudes that my students have about high school and schooling. For instance, if I knew what my students' views of how I should be as a student teacher were I could have perhaps adapted some of their views into my methods and been a more effective educator for them. If I, and other teachers truly understand what the preconceived notions our students have from their exposure to media, the specific shows that they watch, then we as educators will be able to have an open discourse with students about how we can be better educators and about how some of the images on television are not possible in the real school system. It is my hope that with this research other teachers can begin to reach out to younger and younger grades and start the real and meaningful discussions needed to show students the difference between the images shown in media and the actual reality of schooling. Additionally, this research will add to the literature on the subject by focusing on the views specifically of adolescent students and how the media is affecting their views of schooling. In my own review of this subject I have not seen any research specifically focusing on how adolescent students view schooling.

2. Literature Review

Research on the media and its effects on children and adolescents has primarily dealt with how various forms of media affect the development of students. Some research focuses on music (Diamond et al, 2006), on the internet (Johnson & MacEwan, 2006), on movies (Calvert et al, 2006), on celebrities (Xiaozhong, 2006), some on a mixture of media influences (Ziegler, 2007), and most on television (Fox, 1997; Padilla-Walker, 2006 Rivadeneyra, 2006; Ward & Friedman, 2006; Martinson, 2006; Amadeo et al, 2004; Reyes, 2003, 2003; Horton & Arquette, 2000). Along with this broad spectrum of media influences comes a broad range of the ways in which the media can influence the development or perceptions of students. Research has primarily focused on three areas that affect our students: violence (Ziegler, 2007), sexuality including gender roles (Horton & Arquette, 2000; Ward & Friedman, 2006; Ziegler, 2007), and how students perceive the media (Rivadeneyra, 2006; Fox, 1997). However, there is no research on the subject of how adolescent students view school due to their exposure to the media.

This review addresses the themes of critically examining the media and its impact, effects of

the media on students and youth, and the effects of media on students' perceptions of school. Also discussed are the methodologies used by other researchers in this field as well as the gap in our knowledge on the topic of the media and its impact on the perceptions of schooling.

2.1 The importance of critically examining the media and its impact

The reviewed literature highlights three reasons that the media and its impact should be critically examined; a) students spend a lot of time on media; b) media increasingly plays the role of parents or adult guardians; and c) students do not understand what they see.

The most basic and straightforward research on the media and how it may or may not affect students is simply in the amount of time that they spend with the media. Eight hours a day are spent with the media, and of those eight, half are spent watching television. These numbers represent more time than students spend in direct interaction with adults including their own teachers and parents (Ward & Friedman, 2006, p. 134). According to Hazen and Winokus, as quoted by Horton and Arquette (2000), Americans watch over four hours of television on average per day. Many students watch from three to five hours of television on school days (Amadeo et al, 2004, p. 2). It is clear that students have an extensive exposure to the media as a part of their daily lives. Parents are more afraid of the impact that the media will have on their children than they are of the influence that peers will have on their children (Padilla-Walker, 2006, p. 74). The research clearly draws attention to the media as an influence on school aged children. The shear amount of time spent watching television by students highlights the need to critically examine the media.

Behavior is a learned part of a person's personality, something that is socially learned and reinforced. The media has become a growing part of this socialization, and children are more open and affected by what they see and by the suggestions that they hear. Television is a source of the continuation of stereotypes and gender roles among other "average American" values (Horton & Arquette, 2000, p. 6-7). Ziegler (2007), in her article "the (mis)education of Generation M" agrees that the role of family, teachers, and peers is being replaced by the media. What our children watch is replacing what they used to learn from their parents, friends, and teachers.

A further issue that has been identified in research is the lack of students' understanding of what they are seeing in the media. Students do not have the ability to critically review or deconstruct what they see daily on television. Commercials, for example, are seen as real. Many students do not see testimonial advertising as product endorsement coming from the athlete or celebrity but rather the product endorsing the athlete or celebrity (Fox, 1997, p. 11). Television programming, including both the shows and commercials that are aired during the shows are viewed as reality rather than as constructs or interpretations of reality (Fox, 1997, p. 15; Ziegler, 2007, p. 71). A lack of critical thinking skills make it difficult or impossible for students to understand what they see.

1.2 Effects of the media on students and youths

The literature on this subject shows themes related to students' civic knowledge, stereotypes, sexuality, and skills. The following section details the impacts on students in these various dimensions.

Research shows media exposure can affect the way that students view themselves and the

world around them (Amadeo et al, 2004; Rivadeneyra, 2006; Ward & Friedman, 2006). Ward et al discuss the effect that television viewing has on students' civic knowledge. The research draws a clear connection between the number of hours of television watched and student scores on a test of civic knowledge and their trust in the government of their country. This kind of impact is clearly important when looking into the media as an influence on students. If the television that students watch can so move their ability to trust their own government surely it can affect other aspects of their lives like school.

Rivadeneyra (2006) uses her research to examine how stereotypes portrayed on television affect the perceptions of Latino students on their own ethnic group. After viewing clips of several shows, one being *NYPD Blue*, a police drama set in New York City, the adolescent students in the focus groups are unable to identify any positive portrayals of Latinos from the clips, and are easily able to make a list of several negative stereotypes. During focus groups the students disassociate themselves from the Latino characters and culture by using references like "but they are like that" (Rivadeneyra, 2006, p. 407). The students had all previously identified themselves as at the least Latino or as coming from a specific Hispanic nation.

The research conducted by Ward and Friedman shows a striking connection between the amount and type of T.V. watched by students and their sexual attitudes and behaviors. Students who watched more television were more prone to be more sexually active and have less inhibition about their sexual health and safety. Music videos and talk shows have the highest impact of sexual experience and the amount that students going on dates with one another (Ward and Friedman, 2006). As students are becoming more and more sexual due to the television that they watch, what else might they be doing or thinking as a result of their prolonged exposure to television programming? The more television they watch is sure to affect their perceptions on various things, for example how they relate to school.

While the majority of the research conducted on the media shows negative effects on the youth of America there is research that asserts the media has a positive impact on young people. The media has the ability to be used as a positive force in educating students (Amadeo et al, 2004; Martinson, 2006) and it has the ability to take students' thinking skills, interest, and motivation towards their education to new levels (Ziegler, 2007).

While watching television at length or above the average amount for a person's age group can have negative effects on our student knowledge, at the appropriate levels it can support certain aspects of their knowledge base. According to Amadeo et al, in Chile and Portugal students scored higher on civic knowledge tests if they watched more television. This could be explained because of a difference in the programming that they watch, but nonetheless does show the positive impact that the media can play on these students. In America, students who watch television news as any part of their approximately four daily hours of television viewing scored higher on a test of civic knowledge (Amadeo et al, 2004).

Many adults are incapable of using technology and various forms of media at the same capacity as their children or youth in general. However, internet use for example is not having the strictly negative impact of hyper-sexualizing youth that many people fear. The internet can actually boost various skills in our students. Due to a lack of understanding of complex cognitive activities, it is difficult to understand the positive effects of media, as can be seen in the data below.

> "While Internet technology evolves rapidly, current use is associated with visual input and tactile-kinesthetic output via manual manipulation of peripheral devices. During Internet use, language centers of the brain are active, particularly in online communication. Meta-cognitive abilities are required for a variety of online activities including playing games and navigating web sites. Internet games as well as synchronous communication increase cognitive processing speed (i.e., reaction time). Internet games require simultaneous processing; online communication requires successive processing. Internet games make extreme demands on visual and metacognition skills." (Johnson & MacEwan, 2006, p. 3045).

The internet's impact on students is actually increasing the way that their minds work and various abilities that they have. Video games affect students similarly to the internet as well as also being used primarily by students as an area of recreation, relaxation, and entertainment. However, these games are developing skills that can be used to increase the educational quality for students. When used in the classroom, video games increase students' motivation for learning as well as their excitement (Ziegler, 2007, p. 69). The effect of engaging students in the classroom can be seen as a further positive effect of the media; in this case video games, on our students.

2.3 Effects of media on students' perceptions of schooling

The research on the effects of media on perceptions of schooling is focused primarily on college-aged students who will be taking up teaching as a profession and are enrolled in teacher education programs at the undergraduate or graduate level.

The graduate students featured in the research study by Trier (2005) have been left with misconceptions from their experience with television and movies in regards to urban schools.

> "The images that come to mind are, unfortunately, negative. I think of minority students from poor neighborhoods. The schools are lacking resources and not in very good physical condition. There are significant behavior problems and the school as a whole is not run well. There would be fences and gates that would further detract from the physical appearance. Daily attendance would be poor and not a lot of teaching would be accomplished on a daily basis. … I get my impressions from films, television, and the mass media in general." (Trier, 2005).

This example of a graduate level student still relying on the images provided by the media shows the impact that the media can have on anyone.

Other similar research on perceptions of school can be seen in research on undergraduate students' perceptions of urban schools. These students are again part of a teacher preparation program at the college level. As seen in research conducted by Hampton et all (2007) the media does influence these preservice teachers views of urban schools. However, where Trier found negative connections, Hampton et al found that while students had perceptions influenced by the media, they do not completely trust these perceptions. So, while these students have been able to begin to pull away from these perceptions they are still remaining in people's minds as they progress through their training as an educator.

The media has had an effect on even these older students who have had a great deal more education than those involved in this research study and still have biased perceptions due to the

media (Trier, 2005). With the evidence that even older students have been led astray by the media, it continues to force the issue that younger students will have as well.

1.4 Review of research methodology

I reviewed the research methods used in other research on the media impact on people. In Table 1, I present five types of information regarding each study: a) authors and years of publication b) design; c) instruments; d) data types and e) subjects.

Table 1. Research methods and studies reviewed

Author(s) (Year)	**Design**	**Instruments**	**Data types**
Amadeo et al (2004)	Mixed	Document Analysis Survey	Quantitative Quantitative
Fox (1997)	Mixed	Video Clips Interview	Qualitative Qualitative
Horton and Arquette (2000)	Mixed	Survey Document Analysis	Quantitative Qualitative
Padilla-Walker (2006)	Mixed	Survey Interview	Quantitative Qualitative
Rivadeneyra (2006)	Mixed	Video Clips Interview	Qualitative Qualitative
Ward and Friedman (2006)	Mixed	Video Clips Survey	Qualitative Qualitative

All studies reviewed here use a mixed design consisting of two instruments. All studies use survey as an instrument. In addition to this primary instrument, they are either supplemented by content analyses of civic knowledge tests, interviews, and video clips of television shows/ commercials.

1.5 Gap in our knowledge

In all of the research on how the media affects the youth of America, and to a greater extent the youth of the world there is very little the researcher could identify on how the media is affecting adolescent or middle and high school aged students in relation to their perceptions of school. For instance, we know how many hours students watch media; we know the impacts of the media on civic knowledge, stereotypes, sexualization, etc. We also know how college students, especially pre-service teachers view schools, but we do not know how the media affects their views of schools and schooling. This gap in the literature shows that we do not know enough about how adolescent age students perceive schooling. What do they think of teachers, administrators, homework, and the building itself? What of those perceptions matches or does not match the reality of schooling? This research focuses on this question and seeks to expand our understanding of the media's impact on adolescent-age students.

3. Methodology

In order to asses the way in which the media has affected our students' views, perceptions and attitudes regarding school this research needs to gather both qualitative and quantitative information.

In order to gather this information, both survey, for quantitative information, and interviews for qualitative information will be used. In the following sections the instruments, both survey and interview will be described. The participants of the study will also be described further as well as the procedure for gathering the research data.

1.1 Instruments

The two instruments utilized to gather research were survey as the secondary instrument and interview as the primary instrument. The survey was used to gather quantitative information regarding student television viewing habits. The interview was used to gather qualitative research in regard to the students' perceptions about school and how they have been affected by the television that they watch.

The participants were interviewed using open-ended questions which allowed for more insight into their opinions and perceptions. The interview consisted of a set of ten predetermined questions, with other follow-up questions being used when necessary. This semi-structured interview format will allow for varied questions to gather information unique to each student and their perceptions. Students were encouraged to be honest about their viewing habits and to be as specific as they could when answering questions, referring to the name of a show or character when answering questions.

The questions used were concerned with gathering qualitative information on students' perceptions of schooling. The key areas of information that the interviews were concerned with were as follows:

a) Students' perceptions of teachers and teaching styles and how they are represented in the media.
b) Students' perceptions of administrators and how a school should function are represented in the media.
c) Students' perceptions of the schools physical appearance and resources and how they are represented in the media.
d) Students' perceptions of the differences between middle and high school and how they were influenced by the media.
e) Students' perceptions of other students in the school and how they were influenced by their media exposure.

Below are presented sample questions used to gather qualitative information about the areas presented above.

(4) Sample interview questions:

a) While watching a show featuring teenage characters in or around a school setting how do the characters usually talk about their teachers, administrators, school, etc.?
b) Do any of the teachers you watch on television remind you of any of the teachers that you have in school on a daily basis? In what ways are they similar?
c) Does the technology and physical surroundings of your school compare to those that you see on television?

Students were also surveyed to gather quantitative information about their television viewing habits. The key areas of interest for the survey are shown below.

(5) Key areas of concern for the survey:

a) Statistics on television availability and viewing time.

b) Information on viewing preferences and preferred shows.

The survey included a list of 10 questions. Two questions were presented with a list of five choices as responses. Four questions are open-ended, with no choice. The remaining four questions were used to gather demographic data. In (6) I present two example survey questions that illustrate each of the first two types.

(6) Example Survey Questions

a) How many televisions are available in your house? (circle your response)

1 2 3 4 5 or more

b) What shows that you watch involve schools or school aged characters?

3.2 Participants

The participants for the survey were thirty eighth grade students from a rural school district in central New York, and thirty ninth grade students from a different, but similar rural school district in central New York, totaling sixty students surveyed. Ten eighth grade students were selected to participate in the interview as well as ten ninth grade students, for a total of twenty students interviewed.

The district in which the eighth grade students attend school is located in the largest city in its county. The school has an average enrollment of 600 students, six percent of those students being Black or African American, one percent respectively being Latino and Asian/Native Hawaiian, with the remaining ninety-two percent being White. Eight percent of students at the school are eligible for reduced price lunch and twenty-six percent are eligible for free lunch. The school is also in good standing for all of its standardized testing criteria, with over fifty percent of students passing their ELA, math, and social studies assessments with a score of three or four.

The school that the ninth grade participants came from is located in a smaller town in the same Central New York County as the eighth grade students surveyed. The school has an average enrollment of 780 students. The school's make up is only one percent for both Black and Native American students with the remaining ninety-eight percent being white. Ten percent of the students are eligible for reduced price lunch and fifteen percent being eligible for free lunch. This school is in good standing for standardized testing and graduation rate, with over eighty-five percent of students passing all of the Regents Exams.

The middle school students are taught social studies by a white male teacher who identified himself as middle class, and is also a coach of multiple sports in the district and lives within the district limits. The high school students are taught social studies by a white female teacher who identified herself as upper middle class, and has no connections to the district beyond teaching at the school. Both teachers were cooperating teachers for the researcher during student teaching and agreed to help the researcher conduct research with their classroom students.

Table 2 presents the detailed information on each interview subject. The students' pseudonyms along with information regarding their grade and school building level, sex, racial or ethnic classification, and finally their socio-economic status are included below.

Table 2. Demography of students involved in the study.

Student Name	Grade	Gender	Ethnicity	Socio-Economic Status
John	8th, Middle	Male	White	Middle Class
Edward	8th, Middle	Male	White	Lower Class
Christopher	8th, Middle	Male	Latino	Lower Class
Laura	8th, Middle	Female	White	Upper Class
Elizabeth	8th, Middle	Female	Black	Middle Class
Aaron	9th, High	Male	White	Middle Class
Andrew	9th, High	Male	White	Lower Class
Lisa	9th, High	Female	White	Upper Class
Ann	9th, High	Female	White	Middle Class
Lindsay	9th, High	Female	Black	Lower Class

In deciding who to interview for this research, I attempted to reflect the demographics of student population with respect to socio-economic status and race in each of the two schools. This was done to ensure that the data come closer to representing the data for the school and district. The socio-economic status of the participants was determined from their respective classroom teachers' knowledge of the students. All students selected for the interview portion of the study were taken from a larger volunteer pool of surveyed students to obtain an appropriate mix of the two demographic factors to properly represent the demographic makeup of the school districts. In each district there is an almost even split between male and female students; both schools are predominately white with less then twenty percent being students of a minority status, and both schools have more lower to middle class than upper class students.

1.3 Procedure

The participants came to be a part of the research study after the researcher asked permission of the classroom teachers to work with their students. The researcher also sought approval of the building administrators to conduct research in their schools. Furthermore, parents were asked to sign a permission form for their student to participate as all participants are under the legal age.

The survey was conducted in late April 2008 during the beginning of the students' respective class periods. Class time was used under the supervision of the researcher and the classroom teacher with students being informed and reminded for several days before the actual survey was administered. Ten students were selected to gather demographic and background information to help guide the researcher in selecting a smaller pool of students to interview. Students were given fifteen minutes to complete the survey; however, the timing was not strictly enforced.

The researcher gathered data from the survey to select a pool of five students from each school to interview. Interviews took place two weeks after the surveys and were completed over the course of four months. All interviews were conducted in groups of two or three students, allowing students to be more comfortable with the setting and the researcher. The interview sessions were held after school in the classrooms of the cooperating teachers. These interview sessions lasted between forty-five and sixty minutes. All interview sessions were recorded with an audio recorder on the interviewer's computer. The audio recordings were transcribed after the interviews.

4. Analysis and Results

This research contains both quantitative and qualitative data. The quantitative data was gathered through the use of a survey and the interview generated qualitative data. I will first discuss the analysis of the secondary tool, the survey as the data collected using this tool was used to help develop the questions in the interview process and as such this data should be presented prior to the data recorded during the interview process.

To analyze the survey data I had to devise two separate systems as there were two styles of questions presented on the survey. Recall that some survey questions are presented with 5 choices: 5, 4, 3, 2, 1. The participants are asked to select one of these five choices. To arrive at the percentages for each question I added the number of participants who selected each response (X) and divided that number by the total number of surveyed participants. So, X/20= percent of students selecting each response.

To analyze these questions into averages the research took the total number of students selecting a response (X) and multiplied it by the numerical value of the response, then added the results for each response together and divided by 20, with 3(X)+4(X)+5(X)/20=average number of televisions per household.

The second type of question was used to gather lists of data on the students' viewing preferences. For these questions students created their own list of responses which the research compiled into a comprehensive list for each question.

The qualitative research that was conducted through the interviewing process was analyzed after all interviews were completed. I listened to the recordings of each interview twice to transcribe them accurately and completely. Following the transcription process I reread the transcripts three times and identified broad topics and themes that were common through the interviews. Within each category the research found sub-categories that were part of the larger topics.

The larger categories were closely related to the themes of the interview questions, such as questions about teachers. The sub-categories were developed based on student responses to various questions posed by the researcher. For example, when referring to teachers, students often referred to homework, hence creating homework as a sub-category. Table 3 shows the main topics and the subtopics that make up each of the larger topics.

The data gathered in this research was both quantitative and qualitative. The quantitative data was gathered to help the researcher design questions that were tailored to the viewing habits of the students that were being interviewed so that the interview could be more efficient and deal specifically with the shows that students watch. The qualitative data gathered is the heart of this research as it details what students are seeing on television in regards to school, in the reality of school, and their perceptions of school as influenced by both the media and reality.

Table 3. Categories and sub-categories of qualitative qata.

Main Categories	Sub-Categories		
Teachers on TV	Homework	Student Interaction	Class Activities
Teachers in reality	Homework	Student Interaction	Class Activities
Administrators on TV	Student Interaction	Discipline	Home Life
Administrators in Reality	Student Interaction	Discipline	School Life
Resources on TV	Technology	Classroom Equipment	Athletic Equipment
Resources in reality	Technology	Classroom Equipment	Athletic Equipment
Physical School on TV	Building Condition	Athletic Fields	N/A
Physical School in reality	Building Condition	Athletic Fields	N/A

This project researches whether or not what students see represented on television in terms of schooling matches what they see in reality and how television images of schools influence their perceptions. Thus far, there appears to be a mismatch in the representation of school on television and the reality that students face in school. The results of this research regarding the influence that the media has on students' perceptions of schooling, are presented in the following section. The perceptions of the following areas are presented as follows: data from the survey, data on teachers, administrators, resources, the physical setting, and homework/classwork.

4.1 TV viewing habits

Data taken from the survey indicates that students have, on average, 4.1 televisions in their homes. Further breakdown of the results show that 6 students or 30% reported that they have 3 televisions in their home, another 6 students or 30% reported that they had 4 televisions in their home, and the remaining 8 students or 40% reported that they had 5 televisions in their home.

In terms of how many hours a day a student spends watching television the data is more broadly spread. 2 students or 10% reported watching 2 hours of television per day, 4 students or 20% reported watching 3 hours of television per day, 6 students or 30% reported watching 4 hours of television per day, 5 students or 25% reported watching 5 hours of television per day, and 3 students of 15% reported watching 6 hours or more of television per day. On average students are watching 4.1 hours of television per day.

Students' favorite genre of television shows, however, had the most narrow response of any question on the survey, with only reality television and drama listed as the favorite genres of students. 14 students (70%) listed Reality TV as their favorite genre of television, and drama was listed as the favorite genre by 6 students or 30% of those surveyed. It is important to remember, however, that while these are their favorite genres, they are not the only ones watched as can be seen by the data that follows.

Students listed the following shows (Table 4) as the shows that they watch where characters are frequently shown at school. There are no percentages or averages as many students listed multiple shows creating overlaps in data that would create awkward percentages and averages.

Table 4. Shows watched by students

Show Title	Number of Viewers
The Hills	12
Saved by the Bell	5
Gossip Girl	9
Drake and Josh	13
The Simpsons	14
Ned's Declassified	7

4.2 Perception of teachers

Students discussed teachers in terms of classroom activities, homework, and student interactions for both teachers on television and teachers in their schools. This section discusses each type of teacher and the sub-categories associated with it separately and ending with a comparison.

The classroom activities used by teachers on television were primarily spoken of in a negative way. They are described as "hardly ever actually teaching", and when they teach students said that it was through "boring speeches" or "lots of talking". Homework from teachers on television is described by students as time consuming, and unfair. When students discuss how teachers interact with students on television they were described as being superior, mostly rude, harassing, or hardly interacting with students at all. However, a few students described teachers as mentors who helped students to think through problems in their lives by stimulating them with questions.

Real teachers, however, were described in a more positive light. The classroom activities of teachers were described in a mixed fashion. Some students said that teachers only lectured and that they didn't think that their teachers planned ahead. Other students said that teachers tried to create good discussion and activities that the whole class could participate in and enjoy. The homework assigned by teachers in the actual schools students attend were described as a whole in a positive fashion. The assignments allowed students to come prepared to class so that they could learn more material and the homework was described as providing stimulating real-world problems and activities for students to work through. Finally, the interactions with real classroom teachers were also described in a positive light; teachers were described as very understanding of students' needs and issues, willing to help when you need it, and not afraid to speak our language and be open about their own lives and experiences as it pertains to the classroom.

Teachers on television were not described in an overly positive way; their classroom activities were boring, homework was unfair, and interactions were for the most part negative with a small number of television teachers being mentors to students rather than antagonists. However, classroom teachers were described in an opposite fashion; some activities were described as boring, as with television teachers it was the lecture, but some descried them as engaging. The homework was described as a good thing helping bring real world connections and allowing students to be prepared for class. Finally, the interactions were all positive with teachers being willing to listen, help, and mentor students.

There is still a clear disconnect between what is being seen on television and what is being

experienced in the reality of schools. However, I must question if the data is skewed as students know of the researchers' previous relationships with the cooperating teachers and did not want any negative responses to be brought to their attention, even though the participants were told that their responses would be kept confidential.

4.3 Administrators

Students' remarks about the administration in schools fell into two categories: student interactions and discipline. Television administrators will be discussed first followed by the teachers students face in the classroom on a daily basis.

The student interactions with most television administrators are very little. Some television shows don't depict a building administrator, but only mention him or her by name. Television shows also tend to display only one administrator per building even in the case of a show where the sole administrator mentioned is the vice-principal, implying the existence of a principal, who according to the interviewed students is never seen or mentioned. Only one show mentioned featured an administrator above the building level, and this administrator was the district superintendent.

Administrators are the chief disciplinarians on television shows. Most television teachers just send students who need to be punished to the principal or vice-principal. As some shows lack a visible administrator some of these interactions are not even shown on the program, only mentioned through dialogue in the next scene. Detention and the rare case of expulsion are the only two punishments that students see used on television shows. One show featured a student-run judicial hearing to determine the fate of a student. One administrator occasionally attempts to "teach the students of the school a lesson".

Television principles are seen in a very narrow view. They are frequently physically absent from the school setting or seen only in passing. Most administrators are seen as bad guy because they handle the bulk of the punishments that students receive for their misbehavior.

In reality, administrators are seen on a daily basis by the student body. They are moving through the hallways and checking in on a class from time to time. Students are aware that there are multiple administrators within their building, the principal and at least on vice or assistant principle. However, most of these administrators don't know the "average" student. They only know the "good kids" and the "bad kids" and sometimes a student who is involved in an incident involving a "bad kid".

The discipline of the school is not all taken care of by the principle. However, teachers send students that "they can't handle" to the principle to deal with them. Principals in reality have a much larger selection of punishments to assign students, in-school suspension, out-of-school suspension, after school detention, and lunch detention. Principals are viewed as the "person in charge" of the school and not just the disciplinarians.

Again, there is a disconnection in terms of what students see on television and what they see in reality. However, it is not as large in the case of administrators as with teachers. While they may not be shown on television, students recognize that there is a principal at the school on television shows, but "they just don't matter on TV cause what if nobody gets in trouble?" In both cases the administration is seen as being responsible for discipline within the school, but in actual schools, students see their administrators as a supervisor to the teachers in addition to being the disciplinarian. This is likely due to their presence in the classroom.

4.4 Resources

Information regarding students' responses to questions about their schools' resources, school resources they see on TV, and what they expect school resources to be like will be presented here.

The resources of a school were more difficult to break down into sub-categories due to the overlap in student responses. Technology, classroom resources, and athletic equipment became the most well defined sub-categories.

On television, resources received a positive review from the interviewees. Technology, while not as common in the classroom, was still featured on television. Schools had computers and the occasional television program that featured a school's computer lab. The technology was not described as being more advanced than what students would expect to see in a school.

Students also commented on the typical features of a classroom. Chalkboards and an overhead projector were common features in TV classrooms, along with the accessories that one might expect to find: trash cans, pencil sharpeners, bookcases.

Athletic equipment received the most positive reaction from the sample group. Athletic equipment like uniforms for various sports and mats for wrestling all described as "new and clean" students frequently mentioned that athletic uniforms featured the names of characters on them.

Overall, the resources of schools on television are seen as being good to excellent depending upon the category in question. While technology is not shown often, when it is shown, it is quality technology; in addition, the other resources of the school are seen in the same light. Technology is viewed well by students. Computer labs and computers in each classroom are common threads discussed by students. A Smartboard included within a lab is specifically mention by students as being a "really cool" feature of the library's resources.

The classrooms that students attend class in are also seen in a positive way. Each classroom has an overhead projector or a computer projector, depending on the district that the interviewed student attends school in. When asked about the accessories in the classroom the students could not think of anything that they needed.

Athletic equipment is the disappointment to many students. The balls used in gym class from footballs to basketballs are "old and dirty" or "deflate too fast" to be used through an entire period. The jerseys that are used to separate the teams are "falling apart" or "covered in holes".

The difference between technology and classroom resources is minimal between reality and television. Most students could not tell a real difference between the two. Some students even thought their school had "better stuff" due to the Smartboard and the digital projectors that were connected to the teachers' computers. Athletic equipment, however, showed a vast difference. Students were disappointed with the quality of equipment that they were provided at their schools and thought that the television schools had a much better supply for their students.

4.5 Physical setting

The physical conditions of the schools were broken into the buildings condition and the condition of the grounds which focused primarily on the athletic fields surrounding the school. The setting of television schools will be discussed prior to the students' actual school buildings and grounds.

On television all schools look brand new. They are "clean and bright" on the inside, painted nicely with a variety of colors and "decorated with posters" for events happening around the school. The lockers never "jam or break" and don't have "dents and scratches". Many have an exterior that

is attractive and somehow "decorated" although a clear description of what students meant by this was difficult to achieve.

The grounds for the schools are not frequently shown on television, just an exterior view of the building "before they show the kids in school." Similarly, the athletic fields of the schools are not shown as the athletic events of the school are not depicted in the television programs.

The reality that students face is a "beat up" building. The paint on the walls is "old and dirty looking". Students describe the dirty look as being "stained" and not actually dirty. Students further described the school as looking like it belonged in the "70s". The floor tiles are "cracked down the middle" in different locations around the school, but not loose. Lockers are dented or scratched and need "new paint jobs like the halls."

The athletic fields while in better condition than the athletic equipment are not described in positive fashion by students. The fields are "torn up and dying in patches." The football fields need to be repainted so "you can see the yard markers." However, the fields are described as usable and still "fun to play on," even if they aren't in the best shape.

The physical building that students attend class in each day are not seen in the same way as the buildings on TV. Television shows have "new pretty buildings" and students attend class in "old, dirty, rundown" buildings, creating a clear divide between the reality of schooling and the TV reality of schooling. As no fields are shown on TV, there is no way to directly compare them. However, with the difference described in the physical setting and the similar state of the fields students use to the state of the buildings it is probable that if the fields were shown they would also be nicer than those in reality.

4.6 Summary of results

Students on average have 4.1 televisions in their homes and spend 4.1 hours a day watching television. The teachers that students see in reality are more positively viewed than those on television, mainly due to the antagonistic nature of many TV teachers. School administrators are seen in the same light in both reality and television, as disciplinarians, with the exception that TV principals are not seen as being "teacher managers." The resources of real versus TV schools are not disproportionate in terms of the technology and classroom resources featured. However, television schools provide a far superior quality of athletic equipment than in reality. The physical setting of the school is by far the most widely differentiated aspect of television and real-world schools. While the athletic fields can not be directly compared, it is probable that like all other aspects they too would outshine those on the grounds of the interviewee's schools.

5. Discussion and Conclusion

5.1 Discussion

The purpose of this research is to determine the effect of television on adolescent students' perceptions and attitudes about schooling. While the research shows that there is some impact on students' perceptions it does not have a negative impact on their perceptions of school that would create tension between students and teachers in the classroom.

Research conducted by Trier (2005) on pre-service teachers shows that the media has impacted their views of urban schooling in a negative way. This researches focus on an urban school

setting and its older subjects are likely to have been the cause in the difference of findings. The programming watched by adolescent students on television does not have an urban focus nor do they view schooling from the perspective of a future teacher, who would most likely view shows like *Saved by the Bell* and *Drake and Josh* in a different light than adolescent students.

Hampton et al produced similar research to that of Trier with a few minor differences. While the research again showed that pre-service teachers have been impacted negatively by the way that urban schooling is portrayed in the media it also showed that students recognize "it's all hype," meaning that pre-service teachers know that the representation by the media is skewed. This result is similar to results found in regards to the physical condition of the schools that adolescent students attend. Students saw TV schools in a much more positive light, but also were able to recognize that they were television sets and not a true representation of what a normal school looks like.

5.2 Key Findings

My research produced a variety of findings dependant on the category being researched. Teachers, administrators, and resources were all seen in similar ways on television and in reality. The physical conditions and surroundings of the school were viewed in a negative way impacting students' attitudes in regards to this area.

Students' views of their real world teachers were actually more positive than the views expressed about teachers on television. Students described television teachers in predominately antagonistic ways. In many cases it seems that the teachers on television are meant to be the "bad guy" opposed to the adolescent aged characters the show focuses on. This leads students to see their teachers as more supportive. In most cases students also saw their teachers' lessons as more entertaining than those seen on TV.

Students' views of administrators were almost identical to one another. Students saw all administrators as the head of discipline for the school in which they worked. While some schools only had one administrator present, students knew that this could not be correct, but accepted it because it is a TV show. The primary difference between television administrators and the administrators students see in reality is the management of teachers. Students cited seeing the principal in the classroom talking to the teacher or watching the teacher teach as being reasons that their principal is in-charge of the teachers.

School resources were mostly seen as equal in the eyes of the students. Technology and classroom resources were seen equally between television and reality. Students' descriptions of school technology and classroom resources were very similar. Some students did mention that their school had more technology in their school, citing a Smartboard and digital projectors dependent upon the school that the student attended. Athletic equipment, however, was viewed as lacking in reality as compared to television. Students described their equipment as old, dirty, and falling apart while all the equipment seen on television was new and in some cases personalized to the character. Students realized that athletic equipment is meant to be used and as such will become dirty and old looking. However, this did not excuse the equipment that was falling apart in the eyes of the students.

The physical setting of the schools had the largest difference between television and reality by far. Students in every aspect ranked television schools as better. Fictional television schools were brighter, cleaner, better decorated, and better maintained than those our students were used to attending. Although students were negative about the condition that their schools were in, they

were also able to express an understanding that television schools were probably sets and not a place where students and teachers are all day long day in and day out.

5.3 Limitations

The nature of this study was limited in multiple ways. First, the subject pool was small due to a number of parents in one school district not wanting their children involved as research subjects. This led to a tightening of the number of participants in the second school district to keep the data even among the two grade levels. Furthermore, the similarity of the two school districts provided a very narrow participant pool in terms of experience and point of view. Many students reported that they did not watch many shows that featured school aged characters.

In the future, sampling students from both rural and urban settings as well as sampling from a broader age group, including lower grade levels would help to achieve a more well rounded data pool. The addition of lower grade levels could potentially increase the number of shows watched with school aged characters as tween or preteen viewing is geared towards this younger age group. Students from an urban setting will also bring different life experiences and preexisting attitudes about schooling and the media into the research providing for greater depth of analysis.

5.4 Concluding remarks

This research set out to define the impact that the media has on students' perceptions of and attitudes about schooling. It has found that while students are indeed influenced by the media in relation to their thoughts about schooling this influence is not enough to cause a rift between students and teachers. In most cases, the similarities between the way that the media presents school and the way that students perceive school made up for the differences. In other cases, as with the physical surroundings of the school students could reason that the sets were not real schools and that this led to their superiority in comparison to real-world schools.

Future research in this field could focus on how students' perceptions of the physical surroundings of their school impact their motivation for schoolwork and/or students' pride in their school. Also, a revision of this research could include not informing the students of the researcher and their classroom teachers' former relationship to ensure more honest answers. Also, an observation component could be included in which the researcher would observe the participants in the classroom setting and their interaction with the teacher in order to ensure that answers given during the interview are honest and do not contradict the observations made prior to.

While this research did not provide the expected results it did generate surprising results in that students' perceptions of schooling are not so heavily effected by the media that they are creating tensions and a disconnect from the reality of schooling. This may be in part because students are so familiar with schooling by the time that they begin watching programs that feature school aged characters that they know TV is not a true representation of schooling.

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THE VAIROCANA BUDDHA AT LONGMEN: IMPACT AND PATRONAGE

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This research Explores of the impact of the Vairocana Buddha, as well as the colossal Buddha statue at Longmen, China. While art impacts society, society also impacts art. In conjunction with exploring the impact of the Vairocana Buddha, I explored the impact of patronage at Longmen, specifically that of Empress Wu, in the Great Image Niche during the Tang dynasty (618 – 907 C. E.)

1. Introduction

The purchase or production of art has been associated with those who have the money to pay for it. This holds true for all art, be it religious or secular. Artwork for personal use, less visible, often has less national or cultural importance than monumental works of art intended for public consumption. Statues, especially those with religious importance, have had an impact on both patron and viewer. The patronage supporting the creation of the Vairocana Buddha at Longmen, and the colossal statue itself, impacted Buddhist culture during the Tang dynasty (618 – 907). The impact on the Tang dynasty from the patronage at Longmen would be similar to that of the impact of Chartres Cathedral had on the city of Chartre in 1194.

2. Buddhism during the Tang Dynasty

To understand the impact the colossal Vairocana Buddha had on Buddhist culture during the Tang dynasty, one must first understand Buddhism during this time. Buddhism was not new to China during the Tang, but it was evolving and becoming assimilated into broader segments of Chinese culture. Seckel (1964) describes China as open to foreign ideas, thus making the influx of Indian and Central Asian ideas, including Buddhism easier to assimilate:

> Buddhism had penetrated deeply into the consciousness of all classes of the Chinese population and had become firmly established part of its civilization. Tang culture … was completely self-assured, and confident of its own fully-fledged creative powers; it therefore had no difficulty in absorbing one wave of alien influence after another from India, western and Central Asia, and assimilating them smoothly into its own cultural pattern, which gained greatly thereby. (p. 83)

As Buddhism and the image of the Buddha became more Sinosized, or Chinese, the Tang culture gradually became more identified with Buddhism, making it more an integral part of the culture than a foreign idea. Further, Kieschnick (2003) states that the image of the Buddha changed as it traveled along the Silk Road and it too became increasingly more Sinosized.

In China, Buddhism was always closely linked to Buddhist images. According to an early

> legend, until modern times accepted as true, the beginnings of Buddhist history in China were marked by the arrival of emissaries who returned from India with Buddhist books and an image of the "teaching of the icons". And images never ceased to be a central feature of Chinese Buddhist devotion. (p. 53-54)

The images that have been incorporated into Chinese Buddhist devotion convey a meaning similar to that of the Christian icon, Mother Mary. Just as Christianity was part of the identity of Italy, so was the icon of Mother Mary. In China, Buddhism evovled into part of China's identity, as was the image of Buddha himself. Just as having a personal image or being able to commission an image, of the Mother Mary is a symbol of a patron's religious beliefs, Kieschnick (2003) also notes that Chinese patrons during the Tang (or any other dynasty) commissioned images of Buddha, to display their religious affiliation:

> In the Lotus Sutra, the Buddha encourages the pious to make offerings to stupas with gold, silver, crystal, clamshell, and agate. They are also enjoined to make Buddha images out of nickel, copper, bronze, and precious gems …Simplicity and restraint were seldom important ideals in Buddhist art; Buddhist images and devotional objects were instead intended to provoke awe and devotion through spectacular displays of grandeur. (p. 7)

In Buddhism, by implication the more glamorous, and almost ostentatious the devotional object was, the more 'devout' the patron.

3. Patronage at Longmen

The commissioning of the Vairocana Buddha at Longmen was not the first commission at the cave temple complex. McNair points out that the first patron of Longmen, a Buddhist monk Huicheng, was a member of the royal family who, "resolved to give the greatest testimony to his sincerity, had a Stone Grotto (Monastery) made for the state, in this way to respond to the August (Emperor's) grace and to give encouragement to future works (of the same kind)" (p. 11). This encouragement was heeded and in 504 CE, eight shrines were found at Longmen. According to Alphen and Bisscop (2001), over the next hundred years, "More than 2,300 caves and niches were cut from the rock. Over 110,000 images were sculpted, some no bigger than a thumbnail, others of gigantic proportions, the largest nearly 18 meters high. A vast number of pagodas and ornamented pillars, and 28,000 inscriptions were carved" (p. 55-56). The cave temples, as described by McNair (2007), contained a, "stationary grotto that was dedicated and then left to operate in the spiritual realm as an engine of karma, fueled by the worship offered by latter visitors" (p. 7). These grottos were visited regularly by people of all classes, while the imperial temples were secluded, for use only by the royal family. But McNair (2007) also point out that:

> Longmen was a public place and easily accessible from the capital. Though the absence of intrusive shrines in the imperial grottos suggests they were off limits to the other donors, the other large grottos were open for people to enter and offer worship or to add their own shrines (p. 5)

People left their own shrines, or had them created, so they existed almost as votive statues, to operate as an engine of karma.

4. Empress Wu Zetian

As patrons came and went, Longmen became a large complex of cave temples. Empress Wu Zetian (ca. 627 – 705)., through her patronage, endowed the largest Buddha almost two hundred years after the first carvings at Longmen. Alphen (2001) explains that when a stroke left Emperor Gaozong paralyzed and half blind in 660 his power fell into the hands of his consort, Empress Wu. In 662 the Empress commissioned the creation of the 17.4-meter high figure of Lushenafo (Vairocana Buddha) at the Longmen site. Between 672 and 675 she ordered the carving that was completed in 676 and is known today as the Fengxiansi, or 'Ancestor Worshipping Temple' (p 47-57). Vairocana Buddha, the colossal statue, is located in what is known also as The Great Image Niche,; in Buddhism, the statue is also known as the Cosmic Buddha, or as Thorp (2000) makes note, "the source of the entire phenomenal universe," (p. 203). Weidner and Berger (1994) indicate he importance of the Vairocana Buddha:

> The cosmic Buddha Vairocana was the focus of Chinese tantric devotions in the Tang Dynasty. He dominates the *Avatamaska sutra* and many of the major esoteric texts that arrived in China in the Tang…The benefits Vairocana promised were both spiritual and political, and his usefulness in preserving imperial legitimacy was quickly recognized. Symbolized by the sun, Vairocana is the *chakravartin*, the Wheel-turning King or Universal World Ruler, a role that had a great appeal for the emperors of China from the Tang dynasty onward. Aside from the spiritual legitimacy the title *chakravartin* provided, it suggested an era of universal peace with the Chinese emperor at the heart of it. (p. 91)

When the Tibetan army captured the Silk Road City of Anxi, Empress Wu's response was to commission the colossal Vairocana, because the cosmic Buddha was attributed to military preeminence. The Vairocana became a significant figure for China while it maintained its military dominance. This colossal Buddha became a symbol of Chinese military greatness, as well as the strength of the Buddhist faith in China.

5. Vairocana Buddha

Within the actual cave, the Vairocana Buddha sits on an octagonal throne, flanked on each side by guardians, one an armored king, and the other a bare-chested figure. When entering the cave itself viewers are caught in the downcast gaze of the guardians. Vairocana is seated in the most common posture of the Buddha, the traditional mediation pose of legs crossed, displaying frontal symmetry, calm, motionless, . Seckel (1964) indicates that this attitude of meditation "indicates his detachment from all things terrestrial and from the three-dimensional world of phenomena, of human action and suffering. It demonstrates the unshakable nature of the absolute truth and wisdom... which emanates the enlightenment that leads the world to salvation" (p. 166). In conjunction to the almost expressionless face of Vairocana, there are two Buddhist symbols in the "Great Image Shrine:"

the lotus, and the flame. The lotus is a popular and immensely symbolic object in Buddhism, and an important motif. The lotus is the symbol of purity, Buddha, and the cosmos, making the lotus a fitting motif in this space. The lotus, with its petals unfurled in all directions, is a symbol of the world, and its stem the axis mundi, therefore an appropriate throne for the Cosmic Buddha himself. Along with the lotus, Seckel (1964) indicates that the flame is another common element in Buddhist art; "flames represent the radiance of the light of Buddha, the wisdom that enlightens the world" (p. 72). All of these aspects exist within the frame created by the cave. This frame, according to Sharf (1999), must balance both realms, yet belong to neither; draw attention yet remain inconspicuous. At the same time, the relic (Buddha statue in this case) within the frame is an object of material nature unburdened by apparent form. Relics are the boundary occurrence of our physical existence with no significance, a supreme affirmation of life (p. 90). If we follow Sharf's model, this means that the Vairocana Buddha in Longmen, is Buddha, but the form that the statue takes does not confine Buddha, giving the viewer a sense of release from his or her own physical, and earthly concerns.

6. Impact of Buddha and patronage

The impact these aspects have, patronage and the actual Buddha himself, vary from viewer to viewer. These images of Vairocana and other Buddhas are not decorative; just as the Mother Mary holds a significant almost unexplainable spot in the Christian devotion, the Buddha does as well. Kieschnick (2003) points out that devotees ancient and contemporary decorate images of Buddha with cloth or paint. They add new images at ancient sites and discover older images in new temples, all in hope that prayers of well being, success in school, or financial aid will be granted (p. 56). Alphen and Bisscop (2001) observe that despite being damaged and disfigured, Vairocana still radiates enormous power today. This cannot compare with the impression that the sculpture must have made on the viewer during the Tang dynasty. Then, the figure was gilded and had cobalt blue hair. "The devotee who stood below on the river bank saw only the hair and the eyes of the Buddha first, but as he ascended the staircase to the temple staircase the Buddha 'grew' until he was revealed in all his glory." The concept of the caves evolved towards an overall design dedicated to a particular religious theme, such as the transmission of the teaching according to specific Buddhist texts (p. 64).

7. Closing

The symbolism and the religious connotation of Vairocana Buddha has impacted the culture and patronage of the Tang dynasty. Vairocana has been used to sanctify military movements and reassure Buddhists. Vairocana, as well as other Buddhas have made a lasting impact on Tang China. The frame of the relic transports the devotee to a spiritual realm, and simultaneously allows the devotee to forget the problems of the world, and meditate. In the great presence of the Buddha in its "Great Image Niche," one can be humble, and feel the awe inspiring hope from such a magnificent presence from the towering figure of the Vairocana Buddha.

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EDWARD HOPPER'S MYSTERIOUS NARRATIVES

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The paintings of twentieth-century realist painter Edward Hopper had the unique ability to depict the quiet tranquility of simple American life while simultaneously embedding the imagery with details that allude to troubling psychological narratives. *House by the Railroad*, an example of Hopper's mature work, epitomizes this dual reading of Hopper's imagery as both aesthetically masterful and ambiguously uncanny. Through formal and conceptual analysis of House by the Railroad as well as a comparison of Hopper's paintings to the work of European artists who inspired him, such Edgar Degas, one can see the evolution of Hopper's compositional and conceptual techniques. Hopper's relationship with the film photography of Alfred Hitchcock and similarities to Sigmund Freud's essay on the uncanny are also revealed in order to further understand the psychological underpinnings of Hopper's mysterious paintings.

Edward Hopper was an iconic American realist painter who perfected his naturalistic style during a time when abstraction was dominant in the art world. Hopper provided classic New England snapshots of seascapes, Cape Cod-style homes, classical architecture, as well as many dynamic figure paintings and portraits. The most fascinating aspect of a Hopper painting is its ability to be viewed with a range of contradictory interpretations. This dual perception of Hopper's paintings is due to the careful juxtaposition of a range of symbolic imagery. Hopper's distinctive compositions have differing effects relative to the artistic taste and symbolic sensitivity of the viewer. Hopper's imagery is often deeply analyzed in an attempt at using semiotic sign interpretations to decode psychological narratives that hint at Hopper's mysterious views of twentieth-century society. Despite strong arguments towards symbolic meaning in Hopper's work, many other critics see the work as mere conceptually-neutral, yet personal, glimpses of the scenery and residence of New England during the twentieth-century. This camp believes Hopper's imagery to be random aesthetic choices derived from the surroundings of a reserved and underappreciated American realist painter.

His ability to depict the quiet tranquility of simple American life while simultaneously embedding symbolic imagery that is capable of depicting psychological narratives is testament to Hopper's uniqueness as an artist. *House by the Railroad* (Fig. 1) is a great example of Hopper's mature work and optimizes the clear dual reading of Hopper's imagery as aesthetically masterful and ambiguously mysterious or uncanny. Through analysis of *House by the Railroad* for both its aesthetic qualities as well as its embedded psychological imagery, the rarity of Hopper's distinct style becomes evident.

Art scholars have been debating over the true meaning of Hopper's seemingly ambiguous compositions ever since 1924, at his critically acclaimed one-man exhibition at New York's Frank K.M. Rehn Gallery (Levin, 2007). Much of the mystery behind Hopper's unique style comes from his lack of participation in open discussion about his own work. When Hopper was asked

Fig. 1: Edward Hopper. House by the Railroad. 1925. Oil on canvas. 24x29 in. (61x73.7 cm). The Museum of Modern Art, New York. (http://arthistory.about.com/od/educator_parent_resources/ig/picturing_america/pa_neh_31.htm)

why he gravitated to curtain subjects, Hopper said "I don't know, unless it is that I believe them to be the best mediums for a synthesis of my inner experience" (Stanton, 2008, p. 539). Unfortunately, there is little direct documentation of what Hopper strove to truly represent through his painting. However, there are several ways in which scholars and Hopper admirers can learn about his artistic evolution and inspiration, as well as other artists for whom his work has inspired since. Comparison of Hopper's paintings to the work of better documented European artists from whom he gained inspiration, such as the French Impressionist painter Edgar Degas, allows for a look into the evolution of compositional and conceptual techniques. Scholars also look to Hopper's relationship with the film photography of Alfred Hitchcock and comparisons of Hopper's work to Freud's theory of the uncanny. In order to better understand the psychological under workings of Hopper's mysterious narratives, the relevance of these ideas must be discussed.

Hopper painted *House by the Railroad* in 1925, "which became the first painting by any artist to be acquired for the permanent collection of MOMA [the Museum of Modern Art], New York" (Levin, 2007, p. 2). *House by the Railroad* is an oil painting that depicts a nineteenth-century, second empire-style, Victorian house placed atop a hill (Levin, 2007). The age of the Victorian home is emphasized by its juxtaposition above a modern train track located in the foreground. Hopper uses color temperature and varying techniques of paint application to contrast between the

fully functioning modern train and the seemingly abandoned Victorian house. By doing so, Hopper is drawing the viewer's attention to this generation gap between modern and Victorian, allowing for open interpretation of possible psychological narratives that could possibly take place during this still moment captured in time.

Sunlight crashes down heavily on the left side of the aging building. This drastic light is contrasted by the large deeply shadowed façade. The shapes that make up the structure of the façade become indiscernible within the deeply shadowed space. The effects of the light on the building are comparable to the effects of a small nightlight in a young child's bedroom. The intense sunlight striking the house (like a child's single night light that only illuminates a fraction of the bedroom) leaves the majority of the house in deep shadow. This causes the viewer's imagination to discover eerie shapes in the dark abyss. This lighting effect sets the stage for an inevitable uncanny mood in Hopper's painting, a crucial ingredient for any physiological narrative. The manipulation of strong lighting and cast shadows is one of Hopper's most recognizable compositional techniques and is responsible for their inherent dynamism.

The iron train track is supported by a large mound of packed dirt. Both are painted with deep warm reds and umbers, meant to catch the eye, and demand visual presence in the foreground. In contrast, the middle ground and background, consisting of the Victorian house and sky, are painted with a much cooler pallet made up of light blues and pale greens. The use of two contrasting color schemes serves a dual purpose. The color relationship creates spatial depth by separating the picture plane into foreground middle-ground, and background, as well as allowing for visual separation of the two subjects, the modern track and Victorian house.

The pictorial space is further divided using varying treatment of paint application to the canvas. The shadows of the building in the middle-ground, as well as the sky in the background are treated with a thin, diluted wash of paint that demands little visual attention. This allows for atmospheric perspective in the background and intentional blurriness to the shadowed portion of the building. The rail and dirt mound in the foreground are treated with a denser layer of paint, similar to the impasto style of post-impressionist artist Van Gogh in terms of its physicality. The tactility of the foreground imagery demands visual attention, optically and physically protruding off the surface. Hopper's efforts toward contrasting the two elements of the painting result in naturalistic spatial illusion as well as the framework for a host of psychological interpretations based primarily around the uncanny relationship between unknown, modernized train passengers and an ominously lit Victorian house.

Although Hopper is known for his refusal to conform to the European *avant garde* aesthetic by working in naturalistic realism, he did, however, gain some meaningful inspiration during his short trips to Europe that positively influenced his painting style. Although Hopper never returned to Europe again after his last stay in 1910, French art had a lasting impact on him and his artwork. Hopper's most significant inspirations came from his hours spent reading French symbolist poetry and admiring French impressionist paintings. The most influential artist for Hopper was the French impressionist figure painter Edgar Degas (Levin, 2007).

Degas' influence can be seen in many of Hopper's paintings, making use of a similar motif of intense light sources that create dramatic snapshots of modern society. Hopper, like Degas, often depicts a split second glimpse into common scenes of modern society. Hopper depicts personal snapshots of unknown middle-class Americans as well as mysterious modern and pre-modern architectural structures that take on the same emotional sentiment as Degas' figures. In his painting

House by the Railroad, Hopper uses the juxtaposition of the Victorian home with the modern train tracks as emotionally-charged objects that may arguably serve as visual representations of the influence of modern industrial technology on American society during the early-nineteenth-century. Degas' figures served a similar purpose as central images of Hopper's painting, using intimate views of young practicing ballet dancers to providing an honest look into the effects that modern technology has had on the rising bourgeoisie class of France, most notably in the new influx of time for luxury activities such as the appreciation and participation in the fine and performing arts. Although their paintings may look quite different at first glance, Hopper uses similar aesthetic and conceptual motifs as Degas to create wonderfully interesting compositions with somewhat less understandable, but often unsettling possible readings (Levin, 2007). Although Degas' painting seem to be white eloquent and therefore innocent, because of subtle lighting and cropping choices, Degas' paintings can be viewed with an array of differing interpretations like Hopper's *House by the Railroad*.

With *House by the Railroad* Hopper provides an open storyboard for the viewer's imagination to run rampant with a variety of narrative possibilities. The modern train represented by Hopper's tracks, provided a quick, affordable accessibility to distant countryside, a modern convenience that Hopper himself would have witnessed the evolution of. With the new national expansion via rail came the massive spread of people into new unknown areas. This open line of transportation was as much an avenue for exciting travel as it was an opportunity for mysterious and sometimes deadly encounters between ignorant travelers and malicious opportunists.

Movie director Alfred Hitchcock understood the uncanny potential of mass travel to unknown areas sparked by the modern age. Hitchcock made films that started with traveling along the newly paved highway and rail systems that ended with tragedy. Hitchcock's movie *Psycho* is perfect representation of how Hopper's art work inspired other artists with his ability of creating psychological narratives. *Psycho* is a physiological murder mystery film that takes place in a small town at the privately owned Bates Hotel, where the proprietor Norman Bates, who suffers of a split personality disorder, murders several of his clients in cold blood. Before making the film Hitchcock gained inspiration from Hopper's painting *House by the Railroad*. Hitchcock "recognized the deeply disquieting quality" of Hopper's *House by the Railroad* painting, and used a very similar Victorian house for the Bates Hotel in his movie *Psycho* (Iversen, 1998, p. 3). As stated by art critic Margaret Iversen, author of "In the Blind Field: Hopper and the Uncanny," "Psycho helps draw out the deeply disturbing aspect of Hopper" (Iversen, 1998, p. 3).

As much as Hopper influenced filmmakers like Hitchcock, he was also inspired by them. He was an avid movie watcher, who used the idea of the panoramic film still in many paintings in order to capture both intimate and mysterious scenes of modern life in America. It is arguable that all of Hopper's paintings allude to a suspended narrative inspired by his personal fascination with theatre and the psychological effects of ambiguous film stills (Iversen, 1998).

Iversen uses Sigmund Freud's theory of the uncanny, from his essay "The Uncanny," to explain the narrative qualities of *House by the Railroad*. Iversen disagrees with other critics who view *House by the Railroad* as a simple nostalgic look into the past, rather preferring to compare his imagery to Freud's psychoanalytical writings on the uncanny, or eerie side of human nature formulated during and after World War II (Iversen, 1998). Iversen indicates that the house does not sit back and fade into the distance as if its purpose is long since past. It looms forward with

a sinister livelihood, much like the hotel on the hill in Hitchcock's *Psycho*, which immediately evokes a sense of fear into all viewers that know the eerie relationship to the Bates Hotel in *Psycho*. *The House by the Railroad* can be seen as a once cozy home that has been crossed by the repression of modern society, symbolized by the railroad tracks. The spectator, who is situated low, as if from a child's vantage point, gazes across at a strangely transformed house. Hopper may have initially intended for this to be a nice, nostalgic painting, but when he took his sketches back to his studio to prepare for the final painting, his unconscious reverie, or unconscious ideas leaked into it, making it much more dynamic with a complex narrative (Iversen, 1998).

The collective works of Hopper can be called psychological realism, due to the interaction between Hopper's academic treatment of the subject matter, and his subjective, expressive response to it on a deeper level. His work has the ability to "induce a feeling of loneliness or alienation, which somehow merges with an underlying sense of hope and possibility" (Crewdson, 2008, p. 80). By leaving his film still-inspired compositions relatively ambiguous, Hopper surrenders his paintings to each viewer's unique interpretation. However intriguing the outcome may be, it is important to resist the temptation of overlooking the success of the painting in search of far-stretching personal narratives. Such narratives that are not based on close interpretation of the visual cues provided by Hopper diminish the affect that he most certainly was trying to achieve.

Hopper wanted to display his "personal vision of the world" (Stanton, 2008, p. 45). The argument raised is that he did so not only through a direct reproduction of what he saw through masterful draftsmanship and compositional tools, but also by careful placement of universally symbolic imagery that is captivating enough to provide visual stimulus for imagination. *House by the Railroad* is a great example of Hopper's mature work and has been used to show the dual perceptions of Hopper's work as aesthetically pleasing, as well as ambiguously uncanny. Through analysis of the painting's formal qualities, discussion of several areas of artistic inspiration, and discussion of Hopper's psychologically embedded narratives as related to Hitchcock's film *Psycho*, and Freud's theory of the uncanny, the true uniqueness of Hopper's painting aesthetic is revealed.

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WANG GUANGYI: COLLISION OF PAST AND PRESENT

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After the death of Mao Zedong, China relaxed some of the restrictions on its students and artists. A search for a 'Chinese Style' that would represent the nation to the art world began. One artist in particular, Wang Guangyi, established a name for himself and for China with his series of paintings *The Great Criticism*. This series employed the use of bright, vivid colors and the use of Maoist propaganda figures interacting with non-Chinese brand names and logos.

In times of change and turmoil, art is a tool that can communicate ideas to a wide audience and ask its viewers to answer difficult questions. Artists of different eras and different societies naturally have different questions to ask. The questions asked by a modern, American artist active in the 1980's and 1990's will differ substantially from those asked by a Chinese artist of the same period. In China, "unlike in American Pop Art, which had busied itself mainly with the phenomena of contemporary fashions… the tendency was much more to blend memories of a past culture with the current scene" (Cantz, 2005, p. 27). Nowhere is this more apparent than in *The Great Criticism*, a series of paintings by Wang Guangyi.

Wang Guangyi has been named a leader of the avant-garde in China: "he stood at the helm of the elite of New Art Movement circles. He was soon to gain an international profile, too, as his paintings assumed a leading role in early exhibitions abroad…Wang Guangyi could be described as one of China's handful of internationally acclaimed art stars" (Smith, p. 37). From humble beginnings he rose to greatness and became a role model for other artists during the opening of China under Deng Xiaoping. But to understand the cultural significance of Wang's juxtaposition of Maoist propaganda figures and modern brand names, one must first understand art in Communist China under Mao Zedong.

Art in Communist China served the state. With a large population of mostly poor and illiterate people, art became a way to promote unity, spread ideas, and to portray the government in a favorable light. Leaders of the Communist party viewed art as a tool that could be used to serve the purposes of education, revolution, and the elimination of "the bourgeoisie" (Johnston Laing, 1988).

These qualities are easily found in the art of the Cultural Revolution and The Great Leap Forward, Mao's plan to rapidly industrialize China, doomed from the start due to an unrealistic timeline. During this period China was saturated with art works and posters to encourage class struggle and further promote Mao's policies (Powell, P., et. al., 1997). Many of these posters portray Mao as a fatherly individual while others portray the classes of workers, soldiers, and peasants as happy, content, and working towards the greater good of China.

The prejudiced nature of the art created during this period exemplifies the term "propaganda." Under Mao's reign, artists were very limited in the style of works they were permitted to produce. Even though death by famine was commonplace due to the abysmal failure of 'The Great Leap Forward,' works that showed the government in an unfavorable light or that were contrary to government policies were not permitted.

The constraints on artists relaxed somewhat after Mao's death in 1976. Mao's successor, Deng Xiaoping, began to reopen China to the West. He began by reopening the universities in the early 1980's and gradually allowed Western ideas and products back into China. It is this environment in which Wang Guangyi began his career.

Wang Guangyi was born in 1957 to a poor family in northern China. While initially he

> "fulfilled the cliché of being a struggling artist… he has joined China's growing class of nouveau riche. For Wang, the rich nations' romanticization of the passionate but penniless artist was not something to aspire to; having experienced the reality of poverty for himself, he aimed not just to be an artist, but a rich artist" (Rawlings, 2006).

This was a marked change from the Mao era when to be a part of the upper class was considered disgraceful. This shift occurred when Deng Xiaoping succeeded Mao and ushered in a new era. This new era would be characterized by a new policy of "reform and opening."

When Deng Xiaoping continued reforms and reopened the universities in 1980, Wang eagerly attended. This was the same time that China's borders were reopening and a flood of ideas and consumer goods washed over China. Artists were struggling to change their "out-dated" and traditional methods of painting and calligraphy and enter the international art scene. At the same time, artists began looking for a new national identity for China. Wang Guangyi began his career during these amorphous years. He quickly became one of the first 'role models' of China's contemporary artists and in the 1990's his series *The Great Criticism* would reach national and international acclaim.

For centuries Chinese painters did not try to imitate life through representational and realistic paintings. Instead, Chinese painters focused on portraying the 'inner essence' of their subject matter, striving to capture the inherent energy in their subject (Cahill, 1994. p. 115). Wang Guangyi continues this tradition with his paintings from *The Great Criticism* as he takes a close look at the ideals of the past and what are becoming the ideals of the present and future of China. These works consist of the juxtaposition of figures that have been generalized to the point of becoming caricatures, that could have been taken directly from a Maoist era propaganda poster and modern, Western brand names. One exemplary piece from this series is *Disney*.

In *Disney* (fig. 1) (Rawlings, 2006), it is apparent that Wang uses many conventions from Communist China. These include thick lines, primary colors – especially red -- and bold, blocky characters that are representative of classes, not individuals. These are all common elements in the propaganda art of Mao's regime in decades past. While these conventions borrow from the past, Wang also incorporates the present into his paintings.

One way in which Wang Guangyi's paintings differ from those of the past is his integration of brand name labels and logos into his work. In *Disney*, the addition to these former standards is the Disney label. Also, prominently displayed at the bottom of the piece is Walt Disney's signature – a logo in and of itself.

This addition can be interpreted in many ways. By labeling the piece with Walt Disney's signature, one might think that Disney has created these people; with the advent of consumerism and label-crazed masses, it could be a reminder that Western companies have brought prosperity and happiness to many Chinese. With outstretched hands and joyful expressions, the people may

be saluting Disney, paying homage to the new, consumerist deity that has replaced Mao.

Another interpretation is that by adding the Disney copyright, Disney not only created these people, but now owns them. This is again a reflection on how China has changed and moved towards becoming a capitalist, consumer culture. Once introduced to western brand names and ideals, the Chinese became label-hungry. This gave American business enormous amounts of power over Chinese culture.

Given that the painting relies so heavily on the iconography of art during Mao's administration, the purpose of which was to unite the people under Mao, a final interpretation may be that Wang is querying the viewer as to what will bring the country together in this new age. Will it be another great leader like Mao? Or will the new unifier of the people be Mickey Mouse™? This interpretation is plausible as Wang has defined artistic expression as, "the uniting of an artist with the macro-concept of a nation" (Cantz, 2005, p. 52)

Wang Guangyi has crafted an intriguing piece of work with *Disney* (Fig. 1). The juxtaposition of the conventions of the past with the ideas and possibly the ideals of today creates a multitude of questions. The artist himself feels that the central point of the series "is the ideological antagonism that exists between western culture and socialist ideology" (Hong Kong: Time Zone 8, 2002, p. 28). It is this antagonism that allows the piece to serve its purpose: not to supply the answers, merely to ask the right questions.

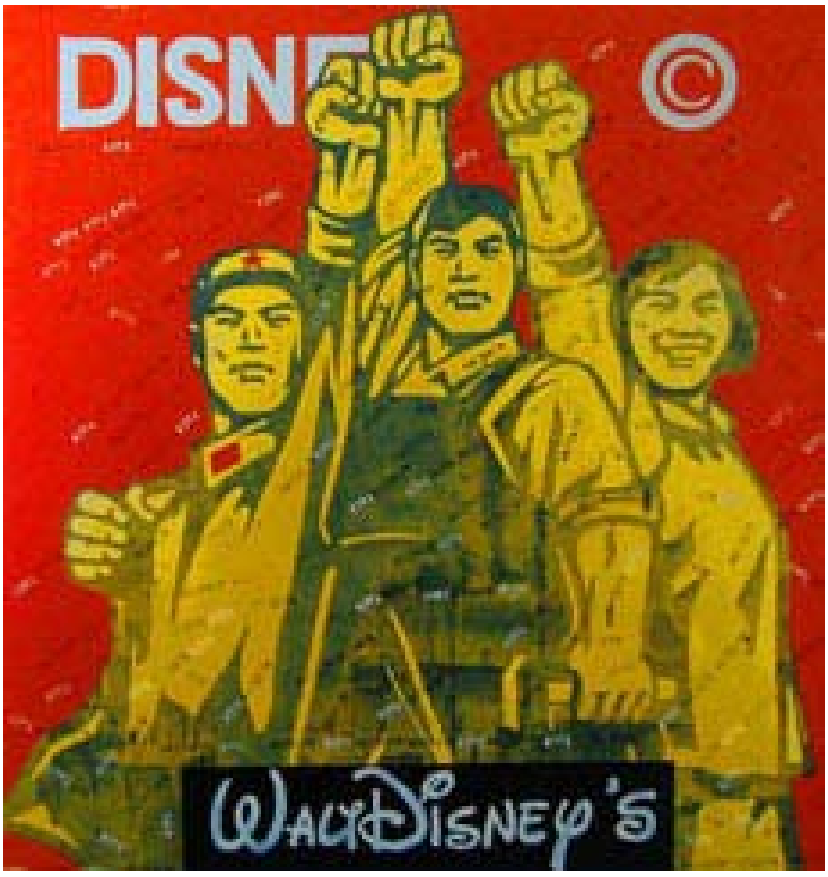

Fig. 1: *Disney* 1999 Wang Guangyi

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Purpose of Quest '09

The Scholarly and Creative Activities Committee and the Office of Research and Sponsored Programs are proud to sponsor Quest '09. The purposes of this conference are the following:

- to encourage and recognize faculty, students, and staff engaged in scholarly and creative activities at Oswego.
- to provide an opportunity for faculty, students, and staff to share their scholarly and creative efforts and communicate across disciplines.
- to help students share their scholarly and creative work, develop an appreciation for the diversity of creative and research activity at Oswego, and identify faculty with whom they may wish to study.