An Investigation of Language Acquisition as an Antecedent to Pro-Social Development for Secondary Students at Risk for Behavior Disorders

Aaron Green-Mitchell

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An Investigation of Language Acquisition as an Antecedent to Pro-Social Development for Secondary Students at Risk for Behavior Disorders

By

Aaron Green-Mitchell

A dissertation submitted in partial fulfillment of the requirements for the degree of

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in
Learning and Leading

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Abstract

Moral development in youth is of importance to both researchers and to educational professionals seeking to shape the pro-social moral development of young people. This study investigated a new theory of moral development based on literature from neuroscience, linguistics, and cognitive psychology. The purpose of this study was to research functional language acquisition’s potential as an antecedent to the development of pro-social moral development among a purposeful sample of alternative school students. This study answered four questions: What gaps, if any, exist between typical language development and the language development of the participants of the study as measured by a functional language sampling assessment? Given a picture of a social event with shared activities, will the participants make pro-social or antisocial connections among the agents? When cartooning to visually represent a participant’s understanding of possible moral transgressions, does the participant’s drawing and writing show a social, cognitive, and/or a language gap between what the participant draws and writes and what the participant tells about the concepts? Will participants show a difference in language function when the task requires higher and/or lower levels of cognition?

To answer these questions, language samples were gathered from study participants using a verbal prompt, shared referent (pictures), and cartooning.
Participants were ten alternative school students. Four students with significant behavior problems comprised the Core Group. Five of their higher achieving peers comprised the Comparison Group. An additional student with significant behavior and academic issues provided a Confirmation Case. All of the students in the study were found to have pre-language levels of language function across all tasks. Further, none of the students made consistently pro-social connections in their stories for agents depicted in APRICOT I and APRICOT II pictures. Students’ cartooned stories showed gaps between their cartooning and what they said orally.

This study suggests alternative school students may have significant functional language deficits and that the behavioral programs at such schools fail to provide students the pro-social moral concepts needed for pro-social moral development. Additionally, they may benefit from the introduction of opportunities for functional language acquisition rarely offered by current curricula.
Acknowledgements

I would like to thank Dr. Arwood, my advisor and mentor, who provided me a new lens through which to view my professional and academic work. Her patience, care, support, and guidance were immeasurable. Similarly, the ongoing support and instructive feedback from the learned peers in my courses and those within my cohort were also remarkable throughout my doctoral work. Additionally, I extend appreciation to my committee, Drs. Kalnin, Carroll, and Ilosvay. Their courses were each instructive in my creation of this research project. Their willingness to entertain my ideas and my writing despite the expansive and at times unconventional nature thereof was of great importance as I worked to bridge gaps between multiple disciplines and produce a relatively novel piece of research. Additional thanks are due to Jadwa and the library staff at the University of Portland for consistently assisting with and congratulating me on the progress of my research. I hold in high esteem their considerable ability to track down even the most obscure resources I asked for and to do so with a spirit of considerable expertise and gusto.

In the time it took me to complete my work for this study a number of my close friends and family sacrificed time and energy to support me in my endeavor. Thank you to Eke, Jennifer, and Sen for forgiving my absences, humoring my dissertation-focused conversations when I was present, and above all believing in me.
Further thanks to Sen for her assistance with editing. Similarly, thank you to my brothers Siche and Gabe, as well as my parents for their support.

Finally, a thank you is also due to those at my research site. To the administrators, teachers, and other staff there I extend my appreciation for the time, assistance, and feedback they lent me over the course of my study. I don’t believe I’ve ever before met a group of people who so readily pour their hearts, time, and energy into their work daily on behalf of a group of young people whose behavior, attitudes, and life events can at times be aggravating, heartbreaking, or often both. And lastly, thank you to my friends, Students 1-10 who readily participated in this study. While this study may speak to deficits or concerns they may each have, it is only because that is the language standard to the literature of this field. Each of them is a young person with intrinsic human value, a variety of strengths and interests, and who does the best they can with the information they have – as I believe we each do.
Dedication

To my friends, family, teachers, and students.
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Chapter 1: Introduction

Background

Having spent more than a decade working as a teacher in alternative education environments, this researcher has been afforded the opportunity to witness a wide variety of dramatic educational successes, as well as failures. While the study of successes can certainly lead to interesting and important educational discoveries, the study of failures and potentially their prevention may be of equal or even greater importance. Often, in this researcher’s practice, most children would find academic success, even if it took some trying. It was those students who didn’t find success, however, who came to be of the most concern to this researcher.

Students who attend alternative schools don’t often attend those schools because things are going well for them. Rather, they enroll in alternative programs having been cast out, or having been compelled to escape from, more conventional settings. Most often they escape situations where they were an ill fit, socially, academically, or behaviorally; they failed to meet mainstream convention. Some literature suggests that the mainstream educational experience can be quite marginalizing to students; and, that, it is those students who are most marginalized and least able to deal with that marginalization who end up at alternative schools (McGregor & Mills, 2012). Of further concern is research that indicates that such alternative schools do little to help students advance academically (Sagor, 1999).
Additionally such schools have not been shown to reduce delinquency rates among their charges (Cox, Davidson, & Bynum, 1995).

Alternative school staff have been reported to generally possess limited training and education to serve their students (Ashcroft, 1999; Lehr & Lange, 2003). It’s also been suggested that alternative school students, like alternative school staff, are at risk for marginalization as well (Kim & Taylor, 2008). This would seem to leave alternative school staff with few options to help remedy the situation of their students. In this researcher’s own experience, this lack of specific training or education can lead to both personal exasperation as well as reduced professional ability to help students succeed.

One student who this researcher wasn’t able to help was “Keith.” Keith attended classes taught by the researcher at an alternative school for a few years. Keith had ups and downs in behavioral and academic achievement during his time there. Ultimately though, Keith was expelled from the alternative program, much like his expulsion from his general education school before that. By the time he was expelled from the alternative program, Keith already had multiple incidences outside of school that resulted in his involvement with the criminal justice system; and, Keith

1 Keith is a fictitious name and all identifying information has been changed to protect the student’s real identity.
had a probation officer with whom the researcher was in regular contact about Keith’s progress.

As years passed, this researcher would hear stories about how Keith was doing and about his ongoing success in sports when he was, occasionally, attending school. Sometimes the researcher would even see Keith driving around the neighborhood, having acquired both a car and a number of tattoos detailing, apparently, commitment to gang life and monetary gain. One day by chance, the researcher ran into Keith at a local sports facility; and, the two were able to catch up a bit. Keith, it turned out, was trying to make a fresh start and return to athletics, which had always been a strong suit of his. He was trying to turn things around for himself and find more conventional success. Keith said he hadn’t graduated high school yet, but had looked into taking some classes that might help him get his General Equivalency Diploma and was going to enroll in them shortly. A month later, Keith would be found dead, having been the victim of a violent crime.

Keith wasn’t the first student of the researcher’s to be involved in violent crime, both as a victim and as a perpetrator. As time passed he has proven not to be the last either. Keith’s death was part of an ever-growing list of events involving this researcher’s past, and present, students; events that have led the researcher to adopt a habit he finds a bit unnerving, the scanning of local headlines each day to see if that day’s news would bring word of another Keith, and they have. While many of this researcher’s former students complete classes and receive their high school diplomas;
too many others end up in the media as mugshots, premature obituaries, or even both. Further, from what the researcher has witnessed, even achieving while at the school doesn’t seem to wholly predict future adherence to pro-social conventions.

There were warnings of course that Keith was headed down a rough path in life. Circumstances combined to put him at-risk early on and school didn’t seem to help him much beyond allowing him the opportunity to chase sports dreams and girls. Neither his initial expulsion, nor his time at alternative school, nor his expulsion from alternative school seemed to have created within him the knowledge of how to participate pro-socially in the larger culture around him and respect its social conventions. The educational lessons provided, the methodologies used, never seemed to really click for Keith. His penmanship was impeccable, but his spelling abhorrent; his athletic feats were astounding, but his behavior in the classroom exasperating. Further, he’s far from the only young person the researcher has met who followed an uncannily similar path.

Through the acquisition of patience as well as growth in understanding and experience afforded by time and neuro-education instruction, this researcher has found an ability to far better reach the exasperating students. Early on the researcher might have found himself asking students incredulously, “Why did you do that?!?” That exclamation being of course a bit of a misnomer as the actual thinking behind that phrase was more along the lines of, “I can’t believe you just did that.” Though given some time, as his experience and education took hold, this researcher realized he did
in fact wonder, “Why did you do that?” A question that eventually the researcher came to collegially ask students; and, one to which the students could even sometimes, though not always, provide an eloquent and suitably morally exculpatory reply. While the question the researcher now asks students uses the same words as before, the functional meaning of those words has changed. Rather than a statement of exasperation the question has become one of earnest inquiry.

At times, students’ explanations for their aberrant or unconventional behavior can be highly instructive. The students who struggle to generate an explanation sometimes don’t seem able to recognize the conventional expectations of formal schooling, or they are often less informative in their explanations. It’s the latter group of students, those who can’t generate conventionally valid explanations for their behavior, who the researcher sees regularly parked in chairs in the school office awaiting disciplinary meetings, or whose names he hears other teachers loudly and with great disaffection recite and then subsequently query, “Why did you do that?!?” That pseudo-question, uttered in exasperation, seems for all practical concerns, nearly synonymous with the similarly often overheard, “You can’t do that!”

The suggestion that one cannot do something simply because of social convention, rather than physical ability, may at times be lost on some students. They certainly can physically do things that society and mainstream American educational culture suggest they should not. Similarly, it is physically possible to do things in society to which society has great opposition. In many instances, this opposition may
be couched in language of morality. It’s conventionally immoral to beat and steal from someone, one of many incidents for which Keith was the assailant.

It is interesting that a student like Keith could tell an adult the rule or social convention for not stealing but then turn around and steal from someone. This suggests that maybe the language of morality is also couched in the developmental levels of concepts like “steal.” The purpose of this study was to investigate a neuro-educational explanation regarding the moral development of individuals. And then, in keeping with that explanation, this study also investigated the level of language function or conceptual learning for a group of individuals who have struggled to demonstrate development of conventionally pro-social behavior. Do students in alternative schools, particularly those with ongoing problems aligning their behavior to the social conventions of the academic setting, have lower functional language acquisition that might impact their acquisition of pro-social moral conventions?

This first chapter of this dissertation will detail the background of the researcher and what led him to develop this study. The chapter will also include the conceptual underpinnings of the study, the statement of the problem and the purpose of the study. Following those sections the research questions, the context of the study, an overview of methods and their limitations, and the significance of the study will be discussed.
Conceptual Underpinnings of the Study

This study’s conceptual underpinnings draw on a variety of authors and fields. The idea that moral development of individuals is important to those beyond the individual themselves is reflected in the work of a very broad number of authors (for example; Moore, Detert, Trevino, Baker, & Mayer, 2012; Noddings, 2002). That said, investigations into moral development have, at least historically, been marked by some difficulty in identifying morals (Haidt, 2012), determining how they’re acquired (Narvaez, 2008), and explaining why an individual’s stated morals don’t seem to consistently instruct, or at least match, his/her action (Moore, Detert, Trevino, Baker, & Mayer, 2012). Beyond the philosophical and empirical arguments that drive investigations into moral development, for students like Keith; another problem exists as well. That second problem is that in addition to philosophical and empirical arguments about morality itself, a similar set of disagreements exists within education about how learning works and therefore also how to best instruct for appropriate, or moral, behavior (Webber & Plotts, 2008).

While early work in the field of moral development has been roundly criticized for being narrow in its definition of morality, more recently researchers and authors have begun to use broader constructions (Haidt & Graham, 2007). Meanwhile, as variations among cultures have continued to be identified, it’s also been observed that individuals generally develop morality that matches their surrounding culture (Prinz, 2007). Suggestions exist that for the majority culture in the US, pro-social behavior is
viewed as morally positive. Further, there also exist suggestions that such pro-social behavior is in fact arbitrated by the acquisition of pro-social concepts (Arwood & Young, 2000) and pro-social language (Arwood, 2011; Arwood, Brown, & Kaulitz, 2015). If a deficit in functional language acquisition and/or the acquisition of pro-social concepts could be shown in a sample of juveniles who have demonstrated patterns of acting anti-socially, such a lack of language function or a lack of conceptualization for moral concepts may contribute to better understanding their lack of moral concepts for pro-social behavior. This understanding would help provide new educational opportunities for increasing their capacity for pro-social moral cognition where other efforts have failed.

That moral concepts are acquired suggests that moral development is a process of learning, though such is not reflected specifically in a number of moral development theorists’ works. There are many current theories regarding the achievement or process of moral development and many point to a neurobiological interaction between nature and nurture or epigenetics (Haidt, 2012), genetics (De Waal, 2006), neurology (Haidt, 2012), culture (Kohn, 1999; Prinz, 2007), emotion (Prinz, 2006), and evolution (Wilson, 2000). If moral concepts are learned or acquired, then functional language acquisition may deserve a place among these theories about how children learn or don’t learn to be pro-social. Further, if functional language deficits could be shown among anti-socially behaving youth then it may lead to the use of remediation based on Arwood’s (2011) principles of raising pro-social
cognition among individuals via language acquisition. There is reason to believe then, that language acquisition and moral development are deeply entwined.

As Chapter Two will demonstrate, a review of existing literature, related to language and morality, does offer some support for the idea that the development of language, both culturally and individually, may be crucial to the development of cultural moral conventions and also to individual moral development within a culture. Poulshock (2006) argued strongly that the development of language was fundamental to the development of morality, an argument that greatly complements Taylor’s (1985) assertion that language permits the individual agency that moral action requires. Baumeister (1997) suggested that some cultures lack such agency-oriented language and that members of those cultures may also fail to demonstrate conventional pro-social morality. Relatedly, O’Connor (1995) demonstrated the existence of impaired linguistic concepts of agency among the incarcerated. That work concurs with the work of Hare (1999) who found similar language problems among the most anti-social of actors. With regard to the actual learning of concepts for moral improvement, O’Connor’s (1997) further work also observed a link between lack of opportunities for incarcerated individuals to advance their language development and heightened risk of recidivism.

The influence of language on perception and construction of reality has also been described by Whorf (1956) and more recently Holmes (2012). While their investigations differed, both suggested that the structure of the language could be
representative of the underlying perception of reality. Additionally, the most recent research, that this researcher could locate, investigating pro-social behavior as a product of moral development, included only a structural language examination (Selfe, 2013) rather than examining functional language acquisition.

Structural language assessment examines language’s surface forms including words, phrases, sentences, morphemes (phonology, morphology, syntax, and surface semantics), and other skills that may be taught via imitation and practice. Functional language, on the other hand, represents thinking, problem solving, and planning in accordance with social and cultural conventions (Arwood, 2011). Concordantly, Selfe’s (2013) study found a mismatch between the self-reported morals and the observed action of individual youth. The mismatch observed between stating a rule or social convention versus being able to explain its greater conceptual meaning is something that Arwood (2011) has reported observing among those with limited functional language acquisition and may be representative of the concern expressed by Lenneberg (1970). Lenneberg, among others, suggest that just because someone is able to echo a word or phrase does not mean that the person is actually learning the underlying semantically based concepts (see Tobias [1994] for an example of the belief that echoing is learning). However, a specific study to investigate the possibility of limited language acquisition among alternative school youth, who regularly demonstrate anti-social behavior despite having been availed of every remediation such schools currently practice, has yet to be conducted. Such studies like
this one may reveal new opportunities to help such youth acquire the pro-social moral conventions through an emphasis on thinking and language.

**Statement of the Problem**

Despite the fact that analysis of the literature suggests that functional language acquisition may be responsible for pro-social and thereby conventionally moral behavior, only limited references exist linking the antisocial or conventionally immoral behavior of marginalized juveniles to their levels of language development. Statistically speaking, anti-social behavior, both in terms of harm to self and others, is a rather significant problem for youth in the US compared to youth in many other developed countries.

Van Acker (2007) noted that the US has the highest youth suicide and homicide rate in the developed world. Additionally, many contemporary practices including those based on seclusion, restriction, monitoring, shock tactics, boot camps, and social skills training don’t successfully reduce crime and related anti-social behavior among youth (Prior & Paris, 2005). The use of those tactics may arise from the ongoing failure of schools to successfully address the problems of disordered conduct and bad behavior, despite societal expectations that they should do so (Costello & Angold, 2001). Because functional language acquisition has not been investigated as an antecedent to consistent demonstration of pro-social or conventionally moral behavior, remediation for such problems based on principles of promoting functional language acquisition for increasing an individual’s pro-social
concepts are not regularly used in schools, including the alternative schools charged with helping the most at-risk of the nation’s youth.

When students fail to adhere to the conventional standards for behavior instructed for or declared by the mainstream education system they may be sent to alternative schools. That exclusionary act, though not necessarily impacting cognitive function via language development, simply works to abate a student’s continued disruption of norms within the mainstream school environment. Similarly, when a student engages in the educational program of an alternative school, evidence of long-term significant reduction in their risk of delinquency is scant. Rather, the same theories that guide instruction and behavior in accordance with social conventions, employed in larger mainstream schools, are often also employed in smaller alternative schools. While statistical indicators suggest that some students may benefit from some of these remedies, none has been shown to be universally effective.

Thus, if deficits in functional language acquisition and deficits in the acquisition of pro-social concepts were be shown to be present among a purposive sample of students who have demonstrated repeated failure to adhere to the social conventions of the contemporary educational environment, then perhaps understanding behavior as a form of communication of acquired concepts and assessing for general levels of acquisition of functional language and specific concepts could lead to better treatment.
Purpose of the Study

The purpose of this study is to assess a sample of behaviorally challenged youth and their more successful peers, all already enrolled in alternative education programs, for their language acquisition levels of functional language and the relationship of their language function to their levels of pro-social development. This research is intended to demonstrate gaps, should they exist, in functional language acquisition that would inhibit students’ understanding and use of pro-social concepts thus impairing their ability to demonstrate conventionally moral behavior in the classroom as well as potentially beyond. This study addressed four questions:

Research Questions

1. What gaps, if any, exist between typical language development and the language development of the participants of the study as measured by a functional language sampling assessment?

2. Given a picture of a social event with shared activities, will the participants make pro-social or antisocial connections among the agents?

3. When cartooning to visually represent a participant’s understanding of possible moral transgressions, does the participant’s drawing and writing show a social, cognitive, and/or a language gap between what the participant draws and writes and what the participant tells about the concepts?
4. Will participants show a difference in language function when the task requires higher and/or lower levels of cognition?

**Context of the Study**

The study was conducted with students attending an alternative school in the Pacific Northwest. The school serves approximately 150 students who have primarily been referred by the local public school district. All interviews and assessments of the study participants and their teachers were conducted at the school. Each participant for the study attended the school for over a year and each Core Group member had been identified by the school as a student exhibiting behavioral concerns while Comparison Group members were identified for their academic and behavioral success at the school. A final student, the Confirmation Case, was selected for his similarity in behavior to the members of the Core Group. Participants in the Core Group were selected based on their record of having the most discipline referrals among the student body for issues of disruption or defiance. Students in the Comparison Group were selected based on their exemplary academic and behavioral records at the school. Study participants were of either middle or high school age and the Core Group members had not been identified by their current or previous schools as English Language Learners nor had they been qualified for Special Education services. Similarly, no student in the Core Group has a 504 plan for specific accommodations to assist learning. Because students in the Comparison Group were
selected for their relative success, the researcher felt such examination of their records was unwarranted for inclusion in this study.

**Overview of Methods**

To answer the question of whether gaps exist between typical language development and the language development of the participants, the participants were asked to answer a time-based auditory prompt. That prompt is, “What do you do on a typical day?” The prompt uses two temporal modifiers, *typical* and *day*, to reveal whether gaps exist between the participants’ functional or conceptual language development and what would be expected of a neurotypical individual. Student answers were recorded and analyzed for the number of arguments provided in response, the language function of the response, and the metacognitive mode the participant uses. Additionally, participants’ stories to event pictures were analyzed for grammar, language function, and completeness in addition to analysis for maximal expansion, modulation, and extension.

To answer the question of whether study participants made pro-social or anti-social verbal connections among agents and activities in a pictured social event, the participants were asked to tell stories to picture materials. Immediately prior to the participant telling their story, the researcher modeled the procedure of how to tell a story for the participants. Students told one story to two different language levels of pictures. The APRICOT I pictures provide a pre-operational context of concepts, while the APRICOT II pictures were created to function at the concrete to formal
cognitive level. These story based language samples were recorded and transcribed providing the researcher samples for analysis with regard to the participants’ pro-social or anti-social concepts. Chapter Three provides a complete discussion of methods and procedures. Analysis of these two samples was conducted by comparing the concepts expressed within the language samples with the definitions for pro-social and anti-social concepts. For the purposes of this study anti-social concepts were defined as those that consist of physical or non-physical acts that are performed aggressively as to be felt or noticed by a victim or onlookers however they do not include risk-taking behaviors (Dalton, 2010). Examples of anti-social behaviors from students’ stories that fit that definition include violence towards others, violence towards objects in the presence of others, and verbal abuse among characters in the stories or denigration of depicted agents by the storytellers themselves. Additionally, such actions fit with Sternberg’s (2009) definition of immoral actions as actions or behaviors that are deemed wrong or frequently very wrong according to social convention. Alternately pro-social concepts as defined for the purposes of this study are those that reflect personal care and empathy (Serow, 1991) through nurturance, support, inclusion, and age-appropriate protection or safety-provision such as in care for a child (Goldstein, 1998). Such actions or behaviors additionally fit with Sternberg’s (2009) definition for moral actions and behaviors as they’re in accordance with what is right according to social convention. These definitions are also in concurrence with Arwood’s (2011) definition of pro-social concepts as being those
which contribute positively to the initiation and maintenance of healthy relationships and anti-social concepts as those that have the opposite characteristics.

To answer the question of whether participants’ drawing and writing representing their moral concepts and social cognition shows gaps when compared with what they told about their concepts, the participants were asked to cartoon and then write out a story that they already told to the researcher. The story that the participant cartooned and then wrote out was one of the two stories they told the researcher based on the pictures. Prior to the cartooning, the researcher had the participant tell his or her story so that the story could be audio recorded and later transcribed (see Chapter Three for a complete description of the process used). The researcher compared the student’s cartooning and writing of the story to the story the student had previously told to the researcher and looked for gaps between the two stories for differences in language function.

To answer the question of whether subjects showed a difference in language function across tasks at varying cognitive levels, their performance across the tasks involving the different levels of pictures as well as the sample in response to the verbal prompt were compared.

Collectively, the sampling procedures were designed to collect authentic data that is both natural and representative of language that names the participants’ thinking. Dr. Arwood, an expert speech-language pathologist and a leading expert in the field of language function, oversaw the analysis of the language samples and
assisted in verification of the researcher’s assessment results. Jessica Duffett, also a speech language pathologist, reviewed and confirmed the transcriptions as natural, authentic, and representative.

**Significance of the Study**

While some recent studies have included language examination in their investigation of moral development, they have only done so from a structuralist perspective. This study established a basis in the literature for a new neuro-education theory of moral development drawn from the research of multiple disciplines. That new theory of moral development suggests that such may be a product of *functional* language acquisition. As such, this study also investigated the *functional* language acquisition of a purposive sample of students, the Core Group, who at least semi-regularly exhibit anti-social behavior at school as well as investigating the functional language acquisition of a Comparison Group of more academically and behaviorally successful students. An additional student whose behavior profile matched those of the Core Group was also included in the study to serve as a Confirmation Case. Prior studies examining social behavior in schools have failed to demonstrate a reliable tie between pro-social behavior and a variety of previously hypothesized factors. The materials and methods selected for this study intend to investigate functional language deficits as a potential source of deficits in pro-social moral development. The reason for approaching behavior as a form of communication of the student’s cognitive understanding based on their language function rather than approaching it as the
ability to produce a quantifiable number of language or behavioral structures and products will be explained in Chapter Two, the Review of Literature. Furthermore, such language function analysis also measures the acquisition of pro-social concepts and such acquisition has been suggested by contemporary moral development theorists to be reflective of conventional pro-social moral development.

This study potentially provides a number of important contributions to the field. First, it supplements prior studies on moral development and the behavior of individuals. Secondly, it employs a learner-centered view of moral and behavioral development, recognizing the learner as key to the learner’s own experience. Thirdly, this study also helps to provide a bridge between neuroscience research and educational applications potentially leading to better-informed educational practices in alternative schools and possibly elsewhere. Positive findings regarding the existence of problems or gaps in functional language development and/or pro-social conceptual development among participants could serve to reduce the use of exclusionary school discipline methods. Currently exclusionary methods are used in an effort to instruct or remediate for aberrant or anti-social behavior which potentially reflects a lack of moral development but those exclusionary methods have been indicated to show marginal to no success in terms of their remedial effects. Other methods for remediating aberrant or conventionally immoral behavior have been argued to be relatively more successful; but, none has been shown to be universally consistent in producing remediation, and some, like rewards based programs, have in some
literature been linked to increases in aggressive behavior. Findings of functional language deficits among behaviorally challenged students might suggest language based remediation is needed for students exhibiting anti-social or conventionally immoral behavior. Such language-based remediation has been shown to reduce anti-social behavior in other groups (Arwood, 2011; Arwood, Brown, & Kaulitz, 2015). Exclusionary school discipline methods have also been indicated to be used at higher rates for students of color and some other minority groups, therefore these potential new remediation measures might serve to increase educational equity. Additionally, this study adds to the available literature about alternative schools and their students, an area that has been suggested to be understudied (Herndon, Bembenutty, & Gill, 2015). Finally, this research offers a synergistic view of academic literature from a multidisciplinary body with regard to social and educational issues.

**Background and Role of the Researcher**

The researcher in this study has worked as an educator in alternative school settings for over a decade. He also attended alternative school for two years during his adolescence. Furthermore, he identifies as having a deep commitment to social justice and egalitarianism as well as a personal moral philosophy relatively in line with contemporary models of utilitarianism. His professional work brings him into regular contact with the students who will be participants in the study and he currently teaches, or previously has taught, each of the students in the study. He’s completed graduate level studies at multiple area universities including a neuro-education
program through the University of Portland though he is neither a neuroscientist nor a professional in the field of cognitive psychology.

**Limitations**

This study used a sample of convenience; although the sample did seem to fit the researcher’s intended sample population. Another limitation is that the researcher is familiar with the participants and the participants are students at a school where the researcher has worked though that may have offered benefits as well based on the researcher’s review of literature with regard to linguistics sampling. Some prior findings have suggested that participants in studies, especially those who are young and at-risk, may intentionally limit their oral language use in the presence of unfamiliar adults (Brookes & Hudson, 1982). Additionally, while there is a lack of a control group, the research did reveal the existence of a functional language deficit among all participants, and antisocial perceptions of agent relationships among some participants, further research may be in order to determine how widespread those phenomena are. Perhaps the most fundamental limitation of this research is that the researcher assumes that the broader educational (and national) culture that students are being expected to adopt is in fact pro-social. Arguments have been made that often school culture is not in fact pro-social and can even be anti-social (Walker, Cavanagh, Stiller, Golly, Severson, & Feil, 1998). Further, studies of alternative school students report that as many as 90 percent of such students have experienced physical or psychological bullying by teachers or other school staff which might contribute to
such anti-social school culture (Whitted & Dupper, 2008). Moreover, many of the remediation techniques for anti-social behavior currently used in schools may be based on reward or token systems that are themselves anti-social or at least potentially encouraging of anti-social behavior (Arwood, 2011; Arwood, Kaulitz, & Brown, 2009).
Summary

This study investigated the potential presence of a deficit in functional language acquisition among a purposive sample of youth attending an alternative school and provided a comparison to other more academically and behaviorally successful students at the same school. This was in keeping with the theory that the researcher identified through a multidisciplinary review of the literature which found support for the idea that functional language acquisition may be an antecedent to the acquisition of conventional morality and conventional moral behavior. To complete the study, oral, written, controlled shared referent, and cartooned language samples were gathered from the four students at the school with the worst behavior as indicated by office disciplinary referrals for instances of disruption and disobedience. These students were designated the Core Group. Their language samples were analyzed for traits of functional language as well as for the presence of pro-social and antisocial conceptions of agent interactions.

The analyses of the samples from those four students who comprised the Core Group were compared to the results from similar sampling conducted with the five most academically and behaviorally successful students at the school. These students comprised the Comparison Group. An additional student, whose disciplinary record at the school matched those of the four students in the Core Group was also selected to provide a Confirmation Case. That student also provided a language sample in accordance with the same methods used for the other students in the study.
Findings indicated that not only did the students in the Core Group and the student who was the Confirmation Case have restricted language function, but so too did the students of the Comparison Group. However the students of the Comparison Group seemed to have slightly more language structures than the other students in the study. Additionally, the most anti-social agent connections were made among the members of the Comparison Group. These included suggestions of both physical and verbal harm or abuse as well as generally anti-social perspectives.

Chapter Two, the Review of Literature, will provide the reader with an overview of moral development theory, contemporary practices for moral instruction, alternative schooling (as students in the sample attend such a school), and learning theories and their educational implementations. Those sections will be followed by literature about a newer theory of learning, the Neuro-Semantic Language Learning Theory (NLLT; Arwood, 2011), which draws on the fields of cognitive psychology, neuroscience, and language. Chapter Three will provide an explanation of the assessment methods and materials used in the procedures of this study as well as the methods of analysis. Chapter Four will discuss the results for this study and Chapter Five will offer conclusions as well as a discussion about the results and about future research in this area.
Chapter 2: Review of Literature

Introduction

The purpose of this study was to investigate the social language function of a sample of young people who have a history of demonstrating potentially anti-social moral development as well as to establish support from literature for such a study. This review suggests the possibility that moral development is a function of social cognition that is arrived at via functional language acquisition. To that end, this literature review involves explanation of a number of views regarding morality and moral development as well as other topics relevant to the study.

Among the problems currently in the field of moral development, there remains a lack of universally or even broadly accepted understanding of the mechanisms governing individual conventional moral development or explaining immoral behavior. This lack of understanding of immoral behavior extends beyond situations of differing expressed moralities; and, also includes a lack of explanation regarding individuals who linguistically express their adherence to certain moral values but then fail to act according to conventional interpretation of those values. This literature review will address those issues as well as the moral and behavioral educational practices currently employed in the US, including in alternative schools where students who run afoul of the behavior and performance conventions of mainstream educational institutions may frequently end up. This review also
includes literature regarding the importance of language in relationship to cognition and social development, followed by a section on methods for the examination of functional language acquisition in determining individual’s social and cognitive development.

While moral development and morality itself may be seen by many to have a religious basis, this review focuses on secular explanations and generally favors works from the modern and post-modern eras. Additionally, this literature review focuses heavily on western civilization, particularly the contemporary American experience though the researcher, as do many authors included herein, recognizes that other moral traditions exist. Further, as the students in the sample attend a secular, non-residential educational program, most of the literature about alternative schooling relates to programs of that nature. Finally, where possible, this review will incorporate relevant literature from the field of neuroscience in order to provide information about the brain structures and functions implicated in morality, moral behavior, learning, and cognition. Cumulatively, this review has been designed to provide the reader with understandings of moral development, the contemporary explanations of how moral development goes array, what happens to young people when it does, and how an understanding of learning and cognitive development mediated by language may better explain moral development and might provide insights to education for students who fail to successfully acquire and reflect the social conventions of mainstream schooling.
While some reviewers may find the breadth and depth of this review to be unconventional or cumbersome in length, providing more context for this study, rather than less, is in keeping with the researcher’s observation that context and theoretical understanding are frequently lacking in contemporary educational practice; and, that educational practice, in the researcher’s view, far too frequently ignores innovations and assessments from outside its discipline. Further, the researcher believes that the failure of many educational professionals (which in prior practice has included the researcher himself) to look outside the realm of educational research and traditional models for learning likely contributes to the stagnancy and recycling of educational practices which have been disproven or disavowed in terms of their utility to promote learning going back at least as far as the early 1900’s (Brown, Collins, & Duguid, 1989). This stagnancy of practice may be what has caused business and medicine to both look for and develop new models of practice that better promote learning (Brown, Collins, & Duguid, 1989; Kaakinen & Arwood, 2009).

Additionally, the “silo-ization” of information, research, and practice, as has been suggested to exist among individuals in many professions and industries, is itself among the factors that Young (1999) described as helping to perpetuate anti-social cycles of development for individuals, communities, and organizations. Further, the researcher believes that research spanning multiple disciplines, as this study does, requires the establishment of a broad theoretical basis of support. In part this study’s review of the literature may be seen to be part of this study’s contribution to the field
as it provides a literary basis for a new approach to moral development based on a new theory of learning (Neuro-Semantic Language Learning Theory). This necessarily means that existing practices and their failures or criticisms be included so they can be both acknowledged as well as their applications recognized and improved upon.

To additionally buttress support for the theory, this researcher completed a research study based on methods derived from the researcher’s review of literature. The methods for that study are contained in Chapter Three and the results and analysis in Chapter Four. Chapter Five explains potential opportunities for increasing prosocial development of the study participants.

*The next section of the literature review covers contemporary theories of moral development, their failures, and suggested potential for a new theoretical underpinning for moral development based on the inclusion of research about language and language acquisition as well as contemporary neuroscience.*

**Moral Development**

The moral development of young people, and people generally, is an issue of critical importance to society. While moral development is of social interest, it also holds great interest to government and business (Moore, Detert, Trevino, Baker, & Mayer, 2012). Early moral theorists argued about the source of morality and whether it arose from reason (Garcia, 2002; Kant, 1988) or emotion (Hume, 1998). Later authors attempted to establish an understanding of how morals developed and their relation to cognitive development, leaning heavily on the idea that individuals
developed morality over time via experience and reflection (Piaget, 1959; 1997). Kohlberg, building on that work, developed a hierarchy for the development of morality but would eventually come under fire for having overly narrow, or biased definitions, of morality (Haidt, 2012; Noddings, 2002; Prinz, 2007).

**Modern Moral Examination**

Contemporary researchers suggest a number of bases for individual morality and moral development, as well as tools with which to evaluate a person’s moral development. These theories go beyond just the recognition that individual moral development generally occurs; but, also look at the contributions to the moral development of individuals from fields including epigenetics (Haidt, 2012), genetics (De Waal, 2006), neurology (Haidt, 2001), culture (Kohn, 1999; Prinz, 2007), emotion (Prinz, 2006), and evolution (Wilson, 2000).

One effort to broaden the understanding of moral development involves broadening the breadth of what exactly is understood as moral development. Researchers historically have frequently studied moral development through dilemmas such as the Trolley Problem or the scenario of Heinz (Christensen & Gomila, 2012). Such studies, when done in conjunction with neuro-imaging tools, can even reveal parts of the brain that may be used in moral decision making (Cushman & Greene, 2012). Neural scans do suggest that whether the studies be deontological or utilitarian the brain processes the tasks similarly (Kahane, Wiech, Shackel, Farias, Savulescu, & Tracy, 2012). However, additional studies reveal that
the brains of people of different cultural backgrounds alight differently to scenarios regarding morally entwined values like honesty (Azar, 2010). The effect of these differences may go beyond the ramifications of simply presenting the same problem in different languages as different language systems change and shape the way the brain processes even non-language tasks (Tang et al., 2006). Different languages also represent underlying differences in thinking (Arwood, 2011). While some neuroscience discoveries support longstanding ideas, such as the idea that behavior can be driven by novelty seeking (Tokuhama-Espinosa, 2011), there is still much room for improvement before neuroscience can fully explain the precise processes of moral development and moral decision making (Haidt & Joseph, 2011) despite contemporary efforts at such.

In some regard, the differences in brain scan results produced by scanning members of varying cultures, while they’re questioned about morality, may, at least, partly be understood as a product of different cultures which have different moral emphases (Haidt & Graham, 2007). Such broader moral understandings have driven the creation of more culturally inclusive tools for assessing morality that go beyond western-centric devices. Where some had suggested that the mechanisms inherent in many moral reasoning tests promoted utilitarianism (Bartels & Pizarro, 2011), these new efforts are more reflective of broad understandings of morality beyond the harm and care models employed by Kohlberg and his contemporaries (Graham, Nosek,
Haidt, Iyer, Koleva, & Ditto, 2011). These new methods of moral examination, however, still don’t explain universally how moral development is accomplished.

**Theories of Moral Development**

One set of ideas about how morality influences individuals is based on identity theory or theories that similarly emphasize the interactions of a group and an individual’s role within the group. Some research suggests that moral behavior is in fact driven by the desire for congruency between one’s actions and one’s perceived “self;” and, argues that such a desire for congruency can motivate pro-social behavior, especially when the pro-social acts are somehow made obvious to others (Winterich, Aquino, Mittal, & Swartz, 2013). Earlier work, in the same vein (Stets & Carter, 2011), found that those more concerned with moral behavior (those who acknowledge moral behavior as a core component of their view of their own identity) were more likely to act morally. Additional work by identity theory driven researchers suggested that moral behavior can be prompted or promoted by in-group recognition (Winterich, Mittal, & Aquino, 2013) though that effect is sometimes influenced at least partially by gender (Winterich, Mittal, & Ross, 2009).

The desire for unity between self-perception and action, as well as in-group and out-group variations, may perhaps be partially reflected in other work that suggests that morally motivated actions are driven by a desire for social unity, explaining the moral justification for honor-killings, and also for relationship regulation. Those researchers suggested that it’s desire for social unity and a related
desire for social relationship regulation that explains how, otherwise seemingly abhorrent, actions can be seen as morally justified or even necessary (Rai & Fiske, 2011). This research about social unity is important because it supports the sort of broader recognition of variety in moral systems that early moral development theorists lacked; and, also explains how morality may, in some instances, run counter to the suggestions of evolutionary biologists (Wilson & Wilson, 2007) who report a broad evolutionary preference for altruism.

Relatedly, at least one author suggests that morality and moral behavior should actually be viewed from the perspective of bounded rationality (Gigerenzer, 2010). Here the argument is made that perceptions of morality are shaped by both the mind and the environment, arguing that the environment is a fundamental key to moral decisions and to moral behavior/action and thus lab-based studies of individuals, removed from the actual context of moral decisions, utilize a faulty instrument. In this way, moral advancement isn’t entirely an individual process. That theory also reports that the neural networks for morality align very much with those for social engagement which, when combined with the observation about the futility of lab-based research on moral decisions, may lead to the conclusion that moral decision making needs to be studied in context among people. Such a shift in study format is suggested to be a potential improvement on study models from theses that rely solely on querying participants’ as stated lab morality to their actual behavior.
Contemporary moral development theorists often incorporate aspects of the neuroscience field as well as information about the development of morality and morally driven behavior in broad cultural terms (Haidt, 2013; Narvaez & Gleason, 2012). These authors sometimes note the predilection of early western moral theorists towards creating models for evaluating individual moral development that are biased towards cultures that are western, educated, industrial, rich, and democratic (Haidt, 2013). Further, some authors (Narvaez & Gleason, 2012) also observe that the dramatic differences in child-rearing models often utilized by different cultures may have impact on moral-development.

A Neuroscience-Informed Theory of Moral Development

Of particular interest among contemporary development theories may be the Triune Ethics Theory (TET) postulated by Narvaez (2008). That theory instructs that an individual’s moral development is based on the three different moral ethics of security, engagement, and imagination. These three components, according to Narvaez, have neurobiological roots. The TET also incorporates aspects of child-rearing and structural neuroanatomy. Among Narvaez’s arguments is the notion that moral development is heavily influenced by a child’s early contact. Contemporary American models of child-rearing predispose adolescents and even adults to relying heavily on the security ethic based on the behavior of their mothers and other familial caregivers. If they receive little touch or direct care then Narvaez has linked this
neglect to a variety of personal ills, as well as potentially anti-social behavior (Narvaez & Gleason, 2012).

The TET’s incorporation of neuroscience is both ambitious but also limited. While only having developed recently, the neuroscience field may offer much more than the broad generalizations that Narvaez’s TET and similar works by others (Decety & Wheatley, 2015) rely on. Though frequently contemporary neuroscientific examinations of moral development and behavior are based on broad structuralists’ views, which suggest that brain function is a result of brain structure; other evidence suggests that structure and function may be more dynamically related (Doidge, 2007). Another such example of structuralism-infused-neuroscience in moral development theory suggests that demonstrable moral understanding, frequently the requirement for legal and social assignment of moral culpability, is limited in adolescence based on the disparate development of brain structures (Casey & Caudle, 2013); or, relatedly, that the broad development of cognitive and emotional centers seems to influence the development of morality (Decety, Michalska, & Kinzler, 2012).

Unfortunately neither of these assertions really provides much insight into the precise mechanism(s) of moral development and these structuralists’ approach ignore more synergistic contemporary models of brain function in favor of reductionist views. Reductionist views of the brain follow the belief that brain structures operate independently and are static and reducible. Each is responsible for a particular task like words, actions, or mores. According to reductionist theory these parts then form
an additive whole. Such reductionism has been argued to be of little utility in explaining human cognition and consciousness (Pereira, 2007). Alternately, the more synergistic theories regarding the brain, like Arwood’s (2011) NLLT, suggest that brain function is greater than the sum of individual components and that brain function reflects interactions among many brain components rather than individual sections. This means that brain regions previously thought to be responsible independently for words, actions, or mores actually function in coordination with each other. However, despite synergistic theories like the NLLT, divisions among neuroscientists still exist, not much unlike the divisions over the process of moral development.

**The Problem of Immoral Behavior**

Perhaps one of the biggest challenges in efforts at identifying a unifying theory of moral development remains the struggle of moral development theorists to explain why some people choose apparently immoral or antisocial behavior when others don’t. Such manifestations of immorality may be made even more complicated by the fact that immorally behaving actors may be able to accurately recite rules for moral actions and be similarly able to honestly espouse to value those actions and moral-living generally. The phenomenon of conventionally immoral or antisocial action persisting among specific individuals (even those who may be thought to know better) often occurs despite the utilization of a number of remediation techniques based on a variety of learning theories being applied to those individuals across a spectrum of educational settings.
A variety of possible explanations exist for those individuals’ continued exhibition of immoral behavior. Narvaez’ TET attempts to explain the existence of variation between an individual’s behavior and the individual’s stated moral values by blaming a shifting internal moral psychological topology. Such shifts in one’s moral psychology are thought by Narvaez to reflect the tumultuous interplay among a number of ethics where variations in interpersonal feelings of closeness and in environmental priming can impact which ethic takes primacy (Narvaez, 2008). Relatedly, some studies showed declines with regard to the moral or pro-social behavior of individuals, also termed moral disengagement, when environments were primed to be disgusting (Winterich, Mittal, & Morales, 2014) or after linguistically priming study participants with language about money (Vohs, Mead, & Goode, 2006). Moore, Detert, Trevino, Baker, and Mayer (2012) also cited the explanation of moral disengagement in their commentary regarding the excuses their study participants made for not behaving in accordance with their own expressed moral beliefs.

Narvaez’s work suggesting shifting internal moral topologies may also be supported by some findings from neuroscience as well. For instance, group social situations can produce neural effects on cognition that reduce pro-social behavior (Cikara, Jenkins, Dufour, & Saxe, 2014). Meanwhile emotion (Immordino-Yang, 2011), alcohol (Duke & Begue, 2015), and prefrontal cortex damage (Adolphs, 2009) have been demonstrated to interrupt or alter cognition; and, in the case of the latter, two selectively favor utilitarian moral judgment. Conversely, individuals who have
had their serotonin levels raised are likely to opt for less-utilitarian solutions to moral quandaries (Crockett, Clark, Hauser, & Robbins, 2010). These may provide examples of Narvaez’s theory of the existence of a dynamic moral topology.

With regard to teens and the problem of immoral action, there are some researchers who attribute heightened periods of anti-social behavior with limited or disparate development between the amygdala and the pre-frontal cortex (primarily during teenage years) (Casey & Caudle, 2013) allegedly leading to impulsive actions, the type of which many judge as being immoral (De Waal, 2006). While several authors have suggested this teen-brain phenomenon is responsible for apparently faulty moral decisions (Coch, Michlovitz, Ansari, & Baird, 2009; Decity, Michalska, & Kinzler, 2012), that idea seems to disregard the fact that some brain development problems can have lifelong impact. One example of life-long effects is the later impact to adults who as children were exposed to stressful environments (Shonkoff et al., 2012). Thus the teen-brain suggestion assumes a temporal limitation that may not be entirely accurate as well as universalizing to all teens an immorality-prone period that may be more limited in actual application. Critics may also note that the teen-brain argument as favored by some researchers for explanation of youthful immoral behavior can reflect ethnocentric or culturally-biased assumptions (Kitayama & Park, 2010).

Other aspects of the research into moral development and behavior, especially those based on structuralist neuroscience lenses, report that psychopaths process right
and wrong differently – or that they seem to care less about right and wrong – than neurotypical individuals even though they can identify conventional moral rules (Cima, Tonnaer, & Hauser, 2010; Harenski, Harenski, Shane, & Kiehl, 2010).

Unfortunately, many such neuroscientific inquiries (including those related to morality) rely on reductionism rather than a synergistic model of the brain (Poeppel & Embick, 2005) so it can be hard to get a universally applicable explanation for specific human behaviors. So, for example, while it may be clear that certain brain damage can heighten propensity for antisocial personality (Waldman, Balthazard, & Peterson, 2011), some disagreements exist (Hart, Forth, & Hare, 1990). Despite a wealth of information (Fumagalli & Priori, 2012), neuroscience still can’t yet fully predict what mediates moral advancement or pro-social behavior of specific individuals (Haidt, 2013). Similarly, research suggests that while on the surface the structure of honesty may appear equivalent in two different cultures the neural networks underlying those concepts are different (Azar, 2010); thus, one person’s conception of honesty may in fact not match another’s.

While research is slim, there is some reason to suspect that disparities between an individual’s perceptions may be important to the process of morality. Such could, in at least some instances, partially explain the seeming disconnects between moral declarations in which people often state a preference to act pro-socially; and yet, those same people engage in subsequent anti-social actions. Literature indicates that generally people express more concern regarding harm to others than they do about
harm to themselves when considering options in a given moral dilemma (Crockett, Kurth-Nelson, Siegel, Dayan, & Dolan, 2014). However, cognitive studies suggest that individuals’ perceptions don’t always provide clear and agreed upon information about a given situation (Hastorf & Cantril, 1954). So it may be that given a specific situation, the multitude of perceptions individuals may have of that situation result in varying perceptions of possible pro-social (or anti-social) responses available to those individuals.

**Language and Cognition for Morality**

Perception as an action of individual moral agents is one of a number of processes potentially implicated in morality, moral action, and moral development. While some of these processes have been found to be unpredictive of moral action, like Theory of Mind or associated mind reading skills (Artinger, Exadaktylos, Koppel, Saaksvuori, 2014; Brooks, Narvaez, & Bock, 2013; Gini, Pozzoli, & Hauser, 2010; Lonigro, Laghi, Baiocco, & Baumgartner, 2014) there is at least one area of cognitive development that may influence moral action (and perception) that, as of yet, may be underexplored.

This one area of cognitive development deals with the importance of the relationship between thinking and functional language acquisition as a component of morality. Advancements in individual language permit more complex thought (Adolphs, 2009) and the development of language among cultures has been argued to be fundamental to the development of moral values systems themselves. This is
particularly true for the development of altruism to non-kin and other out groups (Poulshock, 2006). One of the principles of functional language is that language is larger than the replication of individual words; context, for instance, is vitally important for communication and especially so for specific cultures and specific languages (Sharifian, 2003). For this study, functional language is defined as the language individuals use to represent their thinking, problem solving, and planning in accordance with social and cultural conventions (Arwood, 2011). Evidence for the problematic nature of disparities that can exist in the functional understandings of structurally similar language can be seen in Umoh’s and Udoh’s (2011) analysis of differing conceptualizations of peace (which the researchers identified as a fairly universally desired condition) and the difficulties in achieving such. Those findings are congruent with the bounded-rationality theorist Gigerenzer (2010) who conducted interviews with incarcerated persons and others who demonstrated non-traditional morality. Gigerenzer found that such individuals offered explanations for their acts that often strongly incorporated a sense of moral necessity and that those explanations borrowed the mainstream language structures for morality but then employed that language for markedly different functions. Thus Gigerenzer provides further evidence that analysis of structural language or studies that exclusively rely on such may be limited in their capacity to accurately investigate moral development and further may explain why people can espouse morals matching the values of a surrounding culture;
but, then, fail to match their behavior with the conventional cultural interpretation of how people espousing those values should behave.

The communication of cultural expectations, which is sometimes also referenced as assignment of meaning, is fundamental in Narvaez’s analysis of the development of moral ethics beyond the security ethic (Narvaez & Gleason, 2012). Similarly, the assignment of meaning to experience via the language acquisition process has also been cited as crucial for cognitive development and cognition (Vygotsky, 1962) and also for self-regulation (Arwood & Young, 2000). Further evidence for the importance to development of the combination of social interaction and language was found in a study (Hart & Risely, 1995) which indicated a vast disparity between outcomes for students from low-language use/low-interaction homes versus outcomes for students from high-language/high-interaction homes. Those findings were in line with the accounts provided by Heath (1983) and Fivush (2011) who linked disparate early scholastic success of young people with disparate home language use by their parents.

Not all interaction creates pro-social development, though. Because meaning is acquired and concepts are developed via language (Arwood & Young, 2000), if the concepts acquired by an individual are antisocial then language and thinking develop anti-socially. Such anti-social language and thinking would then impair an individual’s pro-social concept development and could thereby cause individuals to reflect poorly on more pro-social western-centric moral development scales. Such
anti-social linguistic and cognitive development may also provide explanation some individuals’ acting unconventionally or aberrantly in social settings. Further, where an individual’s social development reflects anti-social concepts and those concepts continue to develop or layer anti-socially over time, risk of violent behavior increases (Arwood, 2011). This is in stark contrast to developmental environments where pro-social concepts are acquired and individuals may layer those pro-social concepts to achieve social competence and thereby demonstrate pro-social behavior. For the purposes of this study pro-social concepts are defined as those that reflect personal care and empathy (Serow, 1991) through nurturance, support, inclusion, and age-appropriate protection or safety-provision such as in care for a child (Goldstein, 1998). Unfortunately, violence-producing anti-social concepts may spread as easily or even more easily than their pro-social counterparts (Tsvetkova & Macy, 2015), which may be particularly true in environments that utilize rewards (Arwood, 2011) or environments that widely exhibit anti-social cultures as many schools do (Kohn, 2011).

Neuroscience studies have demonstrated the deep neurobiological impact of cultural acquisition in brain development; and, similarly, these studies indicate that the brain’s changes over time may at least partly reflect one’s culture or the tasks one is assigned (Park & Huang, 2010). Further, cultural acquisition attunes people's abilities and perceptions allowing them to share cultural expectations and interests (Freeman, Rule, & Ambady, 2009). Relatedly, culture has been suggested to prime some
variations in brain development, apparently impacting a variety of aspects of the neural processing of social interaction including facial-emotional recognition (Rule, Freeman, Ambady, 2011). Some of these differences may be triggered by epigenetic forces related to both culture and also to differences in the relative frequency of occurrences of a specific gene potential in a given culture (Kim & Sasaki, 2014) as well as the repetition of tasks in a culture itself (Park & Huang, 2010).

All of these cultural practices and communications should of course be recognized to require language and language acquisition. Literature suggests that human evolution seems to have favored language as a means to communicate cultural norms, morals, and values (Fitch, 2011). Additional support for the implication of language and culture in behavior also includes research from identity theory that suggests stories can instruct individuals on standards for action (Kitcher, 2006; Lave & Wenger, 1991).

Thus it seems that language acquisition may prove fundamental for moral development. Research done with children as young as three indicated that while children may initially have emotional reactions to unfair situations, their acquired language can shift their thinking (and ability to communicate) about the fairness of those situations (LoBue, Nishida, Chiong, DeLoache, & Haidt, 2011). These findings were in keeping with De Waal’s (2006) assertion that speech, or really language, allows the development of complex moral codes; and, as both a culture’s and an individual’s language grows, it provides the opportunity for internal dialogue and
moral reflection. Further, with language and cognition being so intertwined and language being used to process and communicate experiences, language also directs the attention one pays to things (Ellis, 2011) and can influence what one can cognitively process (Gobel, Shaki, & Fischer, 2011). This relationship between cognition and language helps explain the prior finding from identity theorists’ that morally identifying people are more likely to make moral decisions as they place greater emphasis on morality within a given culture.

In fact, conventionally immoral activities like theft may be seen in some manner as violations of the rules of a culture’s language (Searle, 1969). For example “stealing” may represent one’s failing to understand the functional meaning of the concept-phrase *private property*. Meanwhile, limited language function has been associated with increases in conflict with others and failure to resolve and reconcile after conflict has occurred (Horowitz, Jansson, Ljunberg, & Hedenbro, 2006). Additionally, acquiring agency, people who perform an action, is a semantic conceptual field responsible for directing one’s own behavior in accordance with some sort of moral code, has been demonstrated to be impaired in language samples from incarcerated criminals (O’Connor, 1995). Language samples from the incarcerated criminals also revealed language that suggested acquisition of prison-specific moral codes or values. A similarly conducted study, into the culture of the incarcerated, described more conventional modes of thought and behavior were extremely limited, which was argued to result in greater risk of recidivism (O’Connor, 1997). This
concerns with Arwood’s (1983, 1991, 2011) description of individuals with limited or restricted language, particularly with regard to the functions of displacement (distance from referent) and flexibility (ability to talk about an idea in a variety of ways); as having impaired ability to perceive the existence of personal options. Additionally, schools frequently treat such language poor individuals with methods that further restrict their potential for language acquisition by restricting their choices and opportunities to develop agency (Anyon, 1980).

**For Further Study**

Ultimately, there is reason to believe that while moral codes may be variant depending on culture, an individual’s advancement and growth within a specific culture’s moral code (that is, an individual’s moral development) may depend on forces or influences beyond what has already been studied. In contemporary western cultures such moral advancement may be reflected in pro-social behavior demonstrating ethics of care or justice in accordance with the work of Kohlberg, Noddings, and others. However, variations between an individual or community’s *stated* moral code and a community member’s *action* lacks universally accepted explanation. One recent example of this failure in the search for a universally applicable theory of moral development for pro-social behavior was provided by Selfe (2013). When Selfe’s findings didn’t support her original hypothesis regarding other possible moral antecedents, Selfe suggested a need to investigate language ability as possibly antecedent to an individual’s ability to match pro-social moral action to their
stated pro-social moral values. To that end, it may be that an investigation of youth who exhibit anti-social behavior may reveal a deficit in their acquisition of conventional contemporary social constructions of language. If such a deficit was shown, it would suggest the need for linguistically based remedies for moral improvement as well as for helping young people generally to adhere to social conventions. Such remedies may be in marked contrast to those presently availed of such youth today, which as this review of literature will show, have come to rely heavily on exclusion, behaviorism, or other models. These current practices developed over time have continued to show limited universal efficacy; further, some of the methods currently in place such as exclusion for moral transgression should be noted to have quite long histories dating at least as far back as the Torah/Old Testament book of Genesis (Gen. 3:23, King James Version).

*The prior section of the literature review covered contemporary theories of moral development, their limitations, and suggested potential for a new theoretical underpinnings of moral development based on the inclusion of research about language and language acquisition as well as contemporary neuroscience. The next section will detail the involvement of schools in efforts at instruction for moral development as well as an explanation of what has traditionally happened to students who run afoul of the conventions of mainstream school.*
Schooling and Morality

The Role of Schools in Moral Instruction

Induction of youth into a specific culture, and therefore into an expected set of social conventions, may happen across a range of environments including school (Bruner, 1996). In fact, for some youth, and particularly those from at-risk backgrounds, school may be the only place in youth’s lives that provides for pro-social or positive culture (Conrath, 2001). Such young people may not be able to rely on the other institutions to provide for pro-social moral development like church or home (McClellan, 1992). One relatively exhaustive review of the history of moral education, covering 1607-1992, was done by McLellan (1992). His work details a turbulent and sometimes tumultuous path, where at various times, moral instruction was given primacy in schools. However, McLellan suggests that in more recent periods direct instruction for academic subjects has been emphasized while ignoring moral development. His review suggests that multiple reasons for that change over time exist; including growing diversity of communities, a shift in the recognized purpose of public education, and a growing recognition of the existence of disparate value sets among children’s families. A more recent review (Hunter, 2000), suggested that in an effort to both promote success in other subjects and limit controversy about different moral values, efforts at instruction for moral conduct have largely been abandoned by secular public schools. This change is not without its critics (Damon, 2005; Huitt, 2004; Hunter, 2000). Kohn (1997) suggests that what limited instruction
for moral or character development does today is actually more akin to indoctrination and blaming of children for a perceived inherent lack of character.

Perhaps emblematic of contemporary practice for moral development of values is the study by Mosconi and Emmett (2003), which touted that students engaged in values clarification programs were able to expand their definitions of success. But, that research can only be interpreted pro-socially if the children were pro-social rather than personal success. From a social development standpoint concerns for one’s success over others may be a sign of pre-operational thinking (Arwood, 2011). Further research findings have demonstrated that performance orientation among children (rather than social-relationship orientation) is linked to increased aggression; but, social-relationship goals were linked to decreased aggression (Taylor, 1984). Such social-relationship goals, which can honor social convention or rules as well as ethics, may only occur at the concrete or formal levels of cognitive development (Arwood, 2011). In other words, an increase in moral development would also indicate an increase in cognitive development.

Another classic technique for moral instruction in schools, the use of ‘moral’ stories, has been postulated to have been largely a failure. This was argued to be due to variations in literacy, interpretation, and initial values that students brought to the stories (Narvaez, 2002). These failings may perhaps be summed as a failure by the practitioners to consider the needs of the learner and be instead indicative of the doctrination approach that Kohn suggested was in use. It should be noted that the
students’ language levels were not considered in these moral story approaches.

Overall, the literature seems to indicate a relative abandonment of distinctive moral instruction and general lack of efficacy among the programs.

**Conduct Codes**

The shift away from moral instruction did not, however, mean that schools became anarchic battle zones, free of expectations regarding behavior. Rather, schools relied on conduct codes or handbooks in conjunction with corporal punishment or exclusionary practices to try to limit disruption and instill ethical behavior. Arum (2005) highlights the irony of expecting anti-social practices like corporal punishment and exclusion to produce pro-social development among individuals. Conduct codes themselves may generally be seen to reflect community values as well as defining roles for the various agents (students, teachers, administrators, etc.) within the school community. In this way, the conduct codes may be seen to represent the culture of that community, especially in terms of expectations for conduct or action in the academic environment (Shaughnessy, 1989). Research and advisement regarding the development of such codes, however, indicates that they are not meant to be exhaustive but may be taken to be broadly suggestive (Shaughnessy, 1989).

The use of such conduct codes to try to promote or instruct secular ethical conduct in a specific field date back at least 800 years. Such codes are sometimes composed in reaction to particular events they may tend to reflect *aberrations*, rather
than common day-to-day practices for the majority of the populace (Andrews, 2005). Additionally, other codes for behavior date back much further, see the code of Ur-Nammu (Kramer, 1954) among others. Certainly instances exist where such codes can be radically successful in creating a cohesive standard for behavior in a community, though that may be more likely to be true when they’re constructed by the group members meant to adhere to them; and, where group membership is voluntary, as demonstrated in Osborne’s (1915) research with incarcerated adult males.

There is concern, however, that schools’ conduct codes, both by themselves and when used in conjunction with punishment, may be insufficient methods for effective instruction of moral behavior, just as other historically used methods like stories failed. Where early efforts at moral instruction that relied on exhortation of values without reasons or narratives have been suggested to fail for precisely that lack of context (Hunter, 2000), similar criticisms have also been made of conduct codes (Herbon & Workman, 2000). Criticism has further arisen that such codes, as presently devised for use in schools, may do student moral development a disservice by conflating moral transgressions with simple conventional ones thus contributing to moral disarray and confusion about what actions are annoyances and requiring remediation; as opposed to those actions that are far graver moral transgressions and require, in the view of some authors, punishment (Goodman, 2006). Such codes also receive derision for their effect of not really instructing for pro-social or otherwise moral behavior; but, rather for the promotion, or replication, of hegemony catering to
middle-class normative, and gendered, individuals thereby unnecessarily marginalizing non-conformists (Raby, 2004). Similarly, some conduct codes have been suggested to be so abstracted from pragmatic reality that they’re not of real utility to students in informing their successful participation in future professional or community practice (Berenson, 2005).

Exclusion for Failure to Adhere to Conduct Standards

Because the conduct codes themselves were not universally effective at instilling or developing moral behavior on their own, consequences for failure to adhere to such codes were also developed. Given a code to obey, there has to be enforcement. While initially such consequences may have included corporal punishments or detentions, over time judicial and legislative involvement limited the use of those options (Arum, 2005). As schools became less likely to use corporal punishments or detentions, they were frequently supported in, and sometimes required, to use exclusionary methodologies like suspension and expulsion. These exclusionary policies, however, have been suggested by students to be unfair and not morally instructive according to Arum (2005). Arum argued that this is especially true where exclusionary policies were crafted and imposed upon schools by outside forces. These outside forces reflected authoritarian rather than morally instructive values. According to Webber and Plotts (2008), authoritarian values favor strict obedience to the direction of authority figures, frequently without regard for development of individual agency or freedom. These top-down authoritarian models are not
synonymous with authoritative values, which promote positive shared values. Often, the discipline responses like expulsion or suspension policies relied on exclusionary acts, for even first time offenses labeled as zero-tolerance. Such zero-tolerance policies have been suggested to have the effect of criminalizing poor behavior in schools while providing no gain in moral or behavioral development among the students excluded, or among those who remain enrolled in the school (Van Acker, 2007).

While reviews of student data related to exclusionary discipline practices haven’t shown improvements in school climates or individual gains in moral development, studies have found that such policies disproportionately; and, often seemingly arbitrarily, affect black and Latino youth (Shah, 2013), non-heterosexual youth (Himmelstein & Bruckner, 2011), and youth from single-parent or stressful backgrounds (American Society of Pediatrics, 2003). Reviews of the outcomes of use of suspensions suggest that, while zero tolerance policies may appear to take a tough line on behavior, their strongest impact is to increase the likelihood of a student’s future suspension (Skiba, 2000). Research has also suggested that they don’t actually impact the rates of antisocial behaviors like bullying (American Academy of Pediatrics, 2013; Edmondson & Zeman, 2011). Further, exclusionary school discipline practices have been implicated as potential predictors, and arguably predictors; of eventual imprisonment, imprisonment itself perhaps representing the strongest exclusionary practice when one fails to adhere to social-conduct codes
(Tuzzolo & Hewitt 2006). Such imprisonment has been criticized as frequently a misguided and ineffective attempt at changing the individual’s mind or thinking by manipulating the body (O’Connor, 2000). Meanwhile it’s also been suggested that school administrators have taken zero-tolerance policies and exclusionary discipline practices to be tools more often useful to quell annoyance than to actually instruct individuals in appropriate or pro-social behavior (Cotton, 1990).

Those students who find themselves expelled generally have few options. Alternative schooling is one option. Those who don’t attend alternative schools, may find themselves at the end of their formal education entirely (Jarboe, 2011). While historically the option of attending alternative school was only legally required to be provided by a minority of states (Carroll, 2008); more recently, the majority of states have come to offer, or at least endorse, alternative education offerings (Katsiyannis & Williams, 1998).

The prior section reviewed literature regarding the history and methods by which conventional schools have traditionally tried to instruct for the moral development or moral behavior of their students. The next section will trace the development of alternative schools as both suggested treatments for pupils who have failed to meet the conventions required by mainstream schools, and relatedly the role of such schools as bodies which may themselves attempt treatment for improving the pro-social moral behavior of their charges.
Alternative Schools

History of Alternative Schools

Literature suggests that, although education has been compulsory in some form in at least some parts of the US dating as far back as 1852; the first alternative education programs, as currently configured, didn’t arrive until 1911 (Williamson, 2008). That same research indicates that youth, especially older teens not in school during that time, were viewed without acrimony; and, they were believed to be productive members of society, who had left school for work or family obligations. By 1920, concern had grown in the USA, perhaps replicating concern in England, that non-school attending youth were in fact developing bad character or were a risk to the existing social power structure. That change may reflect a cultural shift in the conventionally held views on children and children’s culture itself, where the late 19th century also saw age-prescriptive norms grow in acceptance and similarly witnessed a shift in public consideration of behaviors like smoking or drinking by young people. What might have previously been seen as precocious was increasingly criticized (Mintz, 2009). Thus compulsory education was then extended to adolescents and teens, who had previously not found school success and wouldn’t have previously been compelled to continue in education (Williamson, 2008).

Beyond character development and hegemony driven concerns, economic factors, such as the loss of employment options for non-degree holders, forced the education system to try to college-track student, which may also have contributed to
the growth of alternative schools (Tobin & Sprague, 2000). Similarly, a decline in the availability of children’s parents due to economic factors (two-parents working or single parent households) has been suggested to play into the growth in numbers of students who don’t fit standard school norms or expectations, thus also increasing enrollment in alternative programs (Leone & Drakeford, 1999). Related arguments have also been made that governments may perceive broad economic incentives to encourage the growth of alternative schooling options, at least for those at-risk of dropping out or who have already done so. According to that argument, having a place for the continued education of students who drop out of mainstream schools can reduce the likelihood that those individuals will later pose heightened financial costs to the broader society. These costs arise from the lost financial earning potential of those who dropout and also a dropout’s potential to cause heightened government expenditures. Those additional expenditures reflect the statistical association between dropping out and accessing government social and penal services at higher than average rates (De La Rosa, 1998).

The Alternative School Movement

While alternative education programs were originally intended for the unsuccessful or truant, there was a time when they blossomed briefly into destinations for radical idealists, or at least were more likely to be organized around more radical principles than mainstream schools. These schools composed the contemporary or modern alternative school movement, a diverse set of schools based on small size and
collective governance where teachers often played multiple roles (Neumann, 2003). Students at the radically organized schools sometimes became advocates for radical reorganization of nationwide schooling (Sudbury Valley School, 1970). Most of these schools, however, eventually failed or adopted more mainstream approaches. Sometimes, the more conventionally-minded alternative schools also adopted a few of the novel approaches of these radical schools. The failure of many of the more radical models of alternative schools has been suggested to stem from unsustainability, inherent to their radical organizational structures and to personal instabilities among the adherents of the radical ideologies that launched the schools (Deal, 1975).

**Non-Movement Alternative Schools**

Contemporary alternative education though, especially since the 1980s (McKee & Conner, 2007), bears only marginal resemblance to the alternative education *movement* schools (Neumann, 2003). Some contemporary alternative schools are even run as for-profit organizations (Portner, 1998). While many schools affiliated with the alternative school *movement* may have been attended by choice, contemporary alternative schools have been characterized as being a *forced choice*, where students are essentially compelled to attend in numbers that continue to grow (Lehr, Tan, & Ysseldyke, 2009). Similarly, literature suggests that alternative schools may only be offered as an option after a student experiences or displays signs of problems at mainstream schools (Tobin & Sprague, 2000). Contemporary alternative schools frequently have at least marginal amounts of local autonomy, where the
principal or administrators have greater control than in traditional schools (Foley & Pang, 2006).

Alternative schools are often small in size (Raywid, 1988); and, small school size has been an acclaimed practice (Powell, 2003). But, despite the small size and their relative autonomy, research suggests that alternative schools have little in the way of significant pedagogical variation, when compared with each other or with public schools (Duke, 1978; Kim & Taylor, 2008). Their small size does allow them to operate with limited visibility which further contributes to their local autonomy (Lehr & Lange, 2003); and, that autonomy has been suggested to allow for the creation of at least somewhat more engaging learning opportunities for alternative education students, though that may not always happen (Leone & Drakeford, 1999).

**Contemporary Alternative School Students**

Ironically, while some early alternative schools were organized for those youth not attending school that couldn’t gain employment; many contemporary alternative schools find that their charges are often in fact employed so that the alternative schools need to accommodate those employed as well as help others gain employment (McKee & Conner, 2007). Interestingly, the employment levels among alternative education students are in stark contrast to the description Meyers (1999) reports from alternative school teachers regarding their students; namely, those teachers frequently believe that their students are unmotivated or uncooperative and only do well in select environments. While some literature suggests that the racial makeup of alternative
schools reflects the communities that the schools are set in (Guerin & Denti, 1999) there is also some evidence that conflicts with that, at least internationally. Denny, Fleming, Clark, and Wall (2004) found that minorities were more often enrolled in alternative programs, while Foley and Pang (2006) found that Caucasians are more likely to enroll in alternative programs. This conflict may be explained by other evidence that points to a split, showing that restrictive environments or juvenile detention facilities may have greater numbers of minorities, but not less restrictive instances of alternative education settings/programs (Guerin & Denti, 1999). Historically, those environments with greater numbers of minorities were at risk of creating racially isolated environments (Arnove & Strout, 1978). Guerin and Denti (1999) also found alternative school youth were more frequently bilingual than their mainstream education peers.

High rates of learning disabilities among alternative school youth have also been noted in some literature (Institute on Community Integration, 2003). Research suggests that youth experiencing learning disabilities are more likely to be criminalized; and, once criminalized, more frequently find themselves in disciplinary confinement (Guerin & Denti, 1999). More broadly, some have summarized the students arriving at alternative education programs as having cultural, behavioral, linguistic, or social mismatches with mainstream educational settings (Gable, Bullock, & Evans, 2006).
Alternative school youth (based on self-reporting) are more frequently involved in fights, drug use, weapon possession, and sexual activity than mainstream peers, in addition to having a greater propensity to have experienced homelessness (Zweig, 2003). They also report higher levels of depression (Denny, Fleming, Clark, & Wall 2004) and identify with self-evaluative psychological statements suggesting a greater propensity to have an external locus of control (Conrath, 2001; Miller, Fitch, & Marshall, 2003; Wiest, Wong, Cervantes, Craik, & Kreil, 2001). Further, literature (Wiest, Wong, Cervantes, Craik, & Kreil, 2001) suggests that alternative education students frequently come from families with limited involvement in their lives; and, they come from families where parenting styles are more frequently punitive and authoritarian. That literature argues that, potentially because of those factors, alternative school youth experience lower academic anxiety when compared to mainstream peers; but, they also have poorer coping skills. Between 85 and 90 percent of alternative education students report having been physically or psychologically bullied by teachers or other school staff (Whitted & Dupper, 2008); and, they may be generally categorized as vulnerable or at-risk (McKee & Conner, 2007) in addition to being behind academically (Aron, 2006). They’re also more likely to have experienced physical or sexual abuse or have witnessed violence (Van Acker, 2007) and have also been associated with higher rates of truancy and future rates of arrest (Quinn, Poirier, Faller, Gable, & Tonelson, 2006).
Collectively all of these factors, which can put students at risk academically, can also put students at risk in terms of mental and physical health (Lange & Sletten, 2002). While programs exist for such youth across the nation, the city in which the site for this study is located has been suggested to be the city that’s come closest to building a comprehensive system for serving alternative education students (Aron, 2006). Though even across the city’s alternative school programs, multiple school program models exist (Ruzzi & Kraemer, 2006). As with the rest of the nation, most alternative programs that exist in the city are configured to support only students who are in the middle or high school grades (Lange & Sletten, 2002).

**Evaluating Alternative Schools**

Perhaps, because of the diverse program models and the potentially transient population of students, evaluation of alternative schools can be difficult (Quinn, Poirier, Faller, Gable, & Tonelson, 2006) thus making a comparison between alternative and mainstream schools also difficult (McKee & Conner, 2007). What research does exist suggests that the most significant and most commonly positive identified outcome for alternative school youth is greater appreciation for school (Gold & Mann, 1982; Quinn, Poirier, Faller, Gable, & Tonelson, 2006). But, that change among students seems to reduce or disappear if alternative students re-enroll in mainstream programs (Lange & Sletten, 2002). This has led some to recommend that traditional schools should take a lesson from alternative schools to reduce mainstream students’ own antipathy towards school (Raywid, 2001), which could also be argued
as helpful to traumatized youth who may not learn well in regular school environments (Ziegler, 2014) but have yet to be offered alternative placements.

Research into student conduct at alternative schools has been suggested to be particularly limited which may prove troublesome given that alternative schools seem to serve high levels of students with emotional or behavioral disorders (Flower, McDaniel, & Jolivette, 2011). Further, what research does exist suggests that alternative education students are more prone to discipline issues and alternative education staff may lack appropriate training to deal with the behavior of these students (Ashcroft, 1999; Lehr & Lange, 2003). The apparent lack of effective strategies and training may be why a meta-analysis (Cox, Davidson, & Bynum, 1995) of delinquency related outcomes among alternative education programs found that participation in alternative education programs had no effect on future delinquency, suggesting that the current practice of sending students to alternative education does nothing to support their development of contemporary mainstream socio-cultural moral standards for pro-social (or at least not anti-social) behavior.

**Alternative Education Practices**

Currently suggested practices for alternative schools include developing a flexible and caring staff (Powell, 2003) that employs non-authoritarian practices (Quinn, Poirier, Faller, Gable, & Tonelson, 2006) and engages students’ families (Foley & Pang, 2006), while generally working to develop community for students who may not have had much in the way of community (Leone & Drakeford, 1999;
McGee, 2001). Alternative programs are also advised to focus on a specific type of student rather than offering open admissions (Cox, 1999). Flexible scheduling to accommodate working students is also recommended (De La Rosa, 1998). Additionally, literature observes that clear rules and a focus on remediation rather than punishment can help students succeed in alternative education settings (D’Angelo & Zemanick, 2009).

With regard to remediating poor or aberrant behavior, specifically, some variety in recommendations exists. Two articles suggested instituting very low-tolerance policies (not zero-tolerance, but also not giving students much latitude behaviorally) within alternative education programs (King, Silvey, Holiday, & Johnston, 1998; Rayle, 1998). Meanwhile, others have argued for what may be considered more positive approaches. Token economies with youth in alternative programs have been tried and delivered mixed results. An early report (Arnove & Strout, 1978) found that they only worked in the short term within the restricted setting and student behavior gains didn’t carry over past the period when rewards were available. More recent efforts at using token economies found that students successfully completing those programs were less likely later to be expelled or suspended, though no effect was seen on rate of academic gain or attendance (Safer, 1990). Token economies are defined as systems used within a classroom or other setting that are designed to influence behavior through the provision of tokens for
demonstration of desired behaviors, the tokens themselves being redeemable for reinforcers like candy or other desired objects (Webber & Plotts, 2008).

Despite the muddled findings on the outcomes of using token economies, a number of authors have continued to recommend that alternative programs utilize extrinsic rewards of some kind within alternative education programs. Dugger and Dugger (1998) praised an extensive extrinsic rewards system in their study of what they describe as a successful alternative high school. But students in their control group also showed gains on the measured outcomes without such rewards. Nichols and Utesch (1998) suggested that rewards based programs could be used to the benefit of alternative students including in raising their sensitivity to extrinsic motivators. They then argued that those who failed their program were too extrinsically motivated, leading this researcher to question the clarity of their intended outcome. Tobin and Sprague (1999; 2000) suggested that Positive Behavior Intervention Systems (PBIS), which utilize an irregular system of rewards to try to reinforce community-identified ‘positive’ behaviors, might be used in education settings including in alternative education settings to teach appropriate academic behavior and instruct for social skills, which they suggested could then reduce future delinquency/criminality. PBIS programs aim to reduce incidences and prevalence of anti-social behaviors via modifications to curriculum and practices including clearly defined rules, direct instruction of desired behaviors, regular reinforcement and consequence schedules, and school wide data tracking (Webber & Plotts, 2008). Further suggestions have
been made that, in well-designed positive behavior based programs, at-risk youth have been shown to succeed in demonstrating gains in targeted behaviors (Quinn, Poirier, Faller, Gable, & Tonelson, 2006; Tobin & Sprague, 1999). Meanwhile, others since then have also called for implementing PBIS in alternative education settings including Bradley (2001), Hughes and Adera (2006), Van Acker (2007), and Flower, McDaniel, and Jolivette (2011).

Arguments do exist, however, that such programs may be at odds with observations that youth in alternative settings, especially those identified with social perception impairments, may not understand the variations in behavior required by differing environments. PBIS doesn’t address these variations, potentially leaving alternative students to be later defined as less morally developed (Platt, Casey, & Faessel, 2006). Externally conditioned youth may also be less likely to match the dynamically generated pro-social or moral action spontaneously generated by youth who possess an internal-locus-of-control, as was described in a successful post-alternative-education transition case (Valore, Cantrell, & Cantrell, 2006).

**Criticism of Alternative Education**

While many authors suggest a variety of strategies (e.g., Van Acker, 2007) for helping alternative schools to be more effective, others are more likely to criticize the existence of alternative schools entirely, contending that they’re used as a pressure release by the mainstream educational system allowing ill-fitting kids to be hidden out of sight rather than reforming the mainstream schools to better serve all kids. The
argument has also been made that the use of alternative education as a ‘solution’ is particularly damaging for the kids involved; because (as literature suggests), the only consistent outcome shown for that practice is that students enrolled in alternative schools get to feel better about school while in those schools. But the alternative school students aren’t necessarily shown to otherwise gain from the experience (Sagor, 1999). To further underscore that finding, Cox’s (1999) meta-analysis suggested that alternative schools were not remediating for success in the mainstream educational environment. Cox argued that studies to the contrary were poorly conducted or otherwise limited in ways that made their credibility questionable.

Consistent with prior arguments, McGregor and Mills (2012) suggested that mainstream schools marginalize youth; and, it is those youth least able to deal with marginalization who end up in the alternative education programs. This suggests that the problem is not with the child, but rather it’s really one that’s more systemic in nature. Williamson’s (2008) critique, at least partly, agrees with this line of thought; suggesting that alternative schools’ existence allows schools to avoid responsibility for serving all students and lets mainstream schools only serve those that fit their system. This approval leaves alternative school students having to choose, or be assigned, to schools that operate with scant, at best, evidence of success. Fitzsimons-Lovett (2001) made a similar argument suggesting that alternative schools only exist because of reluctance among mainstream schools to change how they operate in order to actually serve all learners. Kim and Taylor (2008) suggested that the marginalization of those
involved in alternative education programs extended to the teachers; and, they argued that such schools don’t repair inequities; but rather, serve to provide alternative school students with an inequitable education. These researchers noted that the provided caring and nurturing alternative education programs aren’t synonyms for equitable and equal. Their critique further suggests that these environments, which they describe as behavioristic, positivistic, and reductive, do nothing to break generational cycles of educational inequity.

Ironically, the suggestion from Quinn et al. (2006) that alternative programs should view the conventional educational model as the problem and not the student, is not a view that Quinn et al. were willing to apply to the whole education system. If they were to apply that argument overarchingly, it would seem to logically suggest the elimination of alternative schools. A student’s ill-fit would no longer be considered a problem, of the mainstream education system’s model should, by Quinn et al.’s logic, be seen as a problem in the education system’s model. To their credit, they did note that pushing students out of schools doesn’t serve to somehow further educate those same children. They also suggested that while there may philosophical disputes over whether it’s the child or the system that needs to change, alternatives to standard education must still exist, given the current educational system. Quinn et al.’s argument in favor of reforming alternative education, rather than reforming the educational system, relies on a fair example of the view that so concerns Kim and Taylor (2008). This is because nothing that Quinn et al. advocate as important for
alternative education programs to consider changing actually alleviates inequities in educational outcomes, particularly inequities in generational outcomes. Rather, it seems, as Leone and Drakeford (1999) suggest, that the presence of alternative schools for at-risk youth suggests failures in the cultural transmission model of schooling whereby those who don’t fit, even temporarily, the overarching mainstream educational mono-culture, are cast out. This happens even though the excluded children certainly should be capable of learning and learning social conventions if schools, alternative programs included, can just figure out how to reach them. This suggests that the results of this study, while conducted among alternative school students, may have broader implications for the education and correctional systems as a whole.

**Criticism of the use of Rewards for Instruction**

In addition to criticisms of the existence of alternative schools, some authors have also criticized some alternative school practices. For example, while a number of authors reviewing alternative programs may recommend the use of rewards, with or without the addition of punishments, as a means to instruct for moral behavior; such programs have their critics as well. Deci, Koestner, & Ryan (1999) published a meta-analysis that argued that the use of rewards in education could be detrimental to intrinsic motivation. Kohn (1999) has observed that rewarding tasks or behaviors may seem to work in the short term; but, in the long term, such rewards can actually discourage the development of intrinsic interest in the action. In other words, being
rewarded may be particularly troubling when considering the contemporary push for use of rewards to promote pro-social school behavior. Lenneberg (1970) argued that schools misuse rewards in an attempt to instruct for language acquisition. Language acquisition occurs because of a social need. Rewards do not provide a social need.

Neuroscience authors have written that learning can happen without promise of reward (Baars & Gage, 2010). In at least one study, participants’ brains were less responsive to continued rewards over time and produced varying responses to the reward including the inhibition of the desired response (Paulsen, Hallquist, Geier, & Luna, 2015). That latter finding seems to replicate findings by Walker, Kavanagh, Stiller, Golly, Severson, and Feil (1998) which found that rewards programs did not solve or eliminate anti-social behavior. Miller and McKevvitt (2015) indicated that the adoption of the PBIS system at an alternative school was associated with increased aggression among students over time. The increase in aggression may be related to the threat that the presence of rewards poses to self-esteem (Caprara, Passerini, Pastorelli, Renzi, & Zelli, 1986). Students may be turned towards performance-orientation to achieve in a competition for the rewards rather than the students employing social-relationship orientation. Such performance-orientation among youth has previously been linked to greater aggression. Taylor (1984) found that social-relation orientation was associated with lower rates of aggression.

Other researchers (Fabes, Fultz, Eisenberg, May-Plumlee, & Christopher, 1989) have noted that, while some children are more sensitive to rewards than others,
the presence of rewards may in fact lower pro-social action among some children. That research matches findings by Benabou and Tirole (2006) who argued that rewards and punishments sow confusion about community members’ intents and lower overall pro-social behavior. Criticisms of rewards extend even beyond the simple physical trinkets some educational institutions favor. Hester, Hendrickson, and Gable (2009) noted that some children may respond negatively to praise and if they see it as an attempt to manipulate, then reward can have the opposite of its intended effect. Arwood, Brown, and Kaulitz (2015) reported that from a behaviorist perspective, all rewards are punishers and all punishers are rewards. Punishers have shown to support more aggressive acts (Gershoff, 2002).

Further, rewards are paired or associated with desired behavior with the assumption that such rewards will increase the likelihood of the desired behavior occurring again, while positive reinforcement strategies are sometimes used and recommended for youths diagnosed with antisocial behavior disorders. For this research, the effect size of the results is often small to moderate at best (Byrd, Loeber, & Pardini, 2014). Such reinforcement depends on the effectiveness of the paired reward. Such effectiveness is arbitrary at best.

The criticism of rewards, as unnecessary and potentially harmful to the development of pro-social or conventional behavior in education, has also been written about with some depth by Arwood; both individually (1991; 2011), and in conjunction with other authors (Arwood, Brown, & Kaulitz, 2105; Arwood, Kaultiz,
Arwood’s work (1991) notes that reward and punishment programs seem to only work in the presence of those rewards and punishers, an assessment that appears to confirm the finding by Arnove and Strout (1978). Arnove and Strout (1978) observed that improved behavior among students in alternative schools with token economies, a type of extrinsic rewards system in which students receive stamps or tickets that they can redeem for rewards, did not continue when the students transferred to mainstream programs that didn’t offer the same rewards system. This may be because rewards can create an association between an act and a reward, but not necessarily increase the underlying cognitive concepts of the reward recipient (Arwood, Kaulitz, & Brown, 2009). Arwood, both alone (2011) and also joined by Brown and Kaulitz (2015), has further observed that rewards don’t contribute to the development of an individual’s agency; but, visual concepts named by language can be used to advance language acquisition for social cognition. As will be described later in Chapter Two, the development of agency has been argued to be crucial to the development of individual morality (Taylor, 1985).

Taken in total, the criticisms of the inefficacy of rewards to actually remedy the social cognition of individuals to promote pro-social or conventionally moral behavior, bear some resemblance to the criticisms of their punishment counterparts. This may reflect the fact that both rewards and punishments stem from the philosophy that the body leads the mind, and suppose that by controlling the former, one can change the latter (see above for a review of the literature regarding exclusionary
practices). Unfortunately, the use of rewards and reward-related techniques continues on as many educators and other educational professionals don’t understand the theory (or theories) underlying such programs and strategies. The practice of using rewards and/or punishments as instructional tools to promote learning primarily comes from behaviorist learning theory. That theory, as well as some other learning theories commonly employed for remediation of aberrant or conventionally immoral behavior, will be discussed in the following section on traditional learning theories and their implementations.

The prior section reviewed literature regarding the history and development of alternative schools as well as related criticisms regarding the use of alternative schools to treat marginalized or at risk youth as well as criticism of some alternative school methods for trying to manipulate student behavior so that it better matches traditional scholastic convention. The next section will explain the learning theories that much of the instruction at alternative schools (and elsewhere) is based on and how they’re implemented to try to promote conventional and pro-social behavior among young people.

Traditional Learning Theories and Their Implementations

Behaviorist Theory of Learning and Aberrant Behavior

Behaviorism and its origins. Among the models for understanding learning, behavior, and behavioral aberrance from social standards; behaviorism is quite prominent including in alternative education settings and may be seen in the reward
and punishment programs used by educational institutions. Contemporary
behaviorism is largely based on the work of B.F. Skinner, who developed the theory of
operant conditioning. Skinner explained reinforcement was the driver of behavior
after observing that by his own estimation, existing theories about learning were
scientifically weak (Skinner, 1938). He suggested that statistical merit was important
and that though behaviorism was at odds with cognitive study that one day the two
might overlap. He also noted that while there was a lot going on within the body, his
only concern was the external behavior of the individual organism.

While his original works involved animals, later works focused on human
behavior and learning (Skinner, 1953). Skinner argued that behaviorism was more
advanced than prior efforts like astrology and somatotyping for explaining
behavior. He also suggested that human neuroscience would one day show chains
from a given behavior to antecedent external reinforcers. Because of the vast number
of external stimuli acting on humans, he suggested that little control exists within the
individual. Skinner additionally argued that inner-states of humans were irrelevant to
his functional analysis of behavior and suggested that while humans were quite
complicated, his work on animals clearly indicated his theory was correct.

**Skinner on education.** Poor or aberrant behavior in school was due to the
climates of punishment and control prevalent in education and variations in prior
reinforcement, Skinner (1968) contended. He also suggested that most knowledge
acquired in education is verbal and that providing students choices about what to study
might better access their intrinsic rewards system, that is, in his view, rewards that had already been internalized. When an individual did not act in accordance with the suggested outcome for a reinforcer, Skinner offered that one would need to know the individual’s personal story and background (and possibly culture) to figure out the causes and reinforcements of their failure to behave as expected. Children’s and adults’ acts, he suggested (1974), come from contingencies that have shaped behavior over time; thus, blaming kids for their behavior, when the environment was actually responsible, was an exercise in futility. Skinner’s (1974) later work continued to deride the role of cognitive introspection in individual behavior in favor of larger structural forces, claiming that feelings and states of mind couldn’t truly be antecedents of behavior.

With further regard to education, Skinner published (1968) a commentary comprised of his various reviews of educational applications of his theory. Philosophically, he defined learning as a change in behavior and gave a number of successful examples of this including the instruction of pigeons in performing choreographed dances. Given the vast amount that human children are expected to learn, and the number of contingencies required in some instances to learn them; he suggested that technology really should take the place of conventional teacher-led instruction. Additionally, school, he said, had far too much punishment associated with it; and that made school a fairly miserable experience where students were controlled with aversive responses causing them to attack the schools and
making them reluctant to learn. Aversive control was perpetuated, he argued; because aversive control worked with prevailing concepts of government and religion.

Instead of such measures of aversive control; Skinner advocated for positive reinforcement in addition to instruction and the creation of an environment to help support learning, one that was devoid of unintended reinforcers (1968). Reinforcers could be differently interpreted by different students, additionally advising against teachers getting too close to students as the teacher might then inadvertently reinforce things they hadn’t desired to reinforce. *(The researcher notes that this last point is more or less in direct contradiction to the basic practice of the alternative school site used in this study. The school for this study specifically advises that staff develop positive relationships with all students.)*

Skinner’s further work in education (1987) suggested step-based instruction, breaking down tasks to be taught, and then reinforcing parts of the tasks in small increments. Much like many, in contemporary alternative education, he advised the use of rewards or even token economies in which students earn tokens to be redeemed for desired prizes. The task of education, he argued, was to build a repertoire of behaviors within an individual which would then be reinforced through existing natural reinforcers that existed within the larger society.

**Other contributors to behaviorism.** Skinner was far from being the only behaviorism theorist. Bijou and Baer (1961) were also adherents to the theory and argued that among the benefits to observing behavior is that it’s measurable, while
internal states are not as readily so. While Bijou (1965) observed that the operant conditioning learning process could be lengthy, further research by Bandura (1965) suggested that modeling would speed up the learning of new behaviors. Meanwhile, Horner, Eberhard, and Sheehan (1986) suggested that the teaching of negative examples was important for instruction as well.

**Behaviorism in contemporary education.** In the contemporary field of education one of the most prominent applications of Skinner’s behaviorism is the PBIS system developed by Sugai and Horner (2002). They agreed with Skinner’s suggestions that punitive approaches to discipline could increase antisocial behavior and create or perpetuate authoritarian structures. Instead, schools and classrooms should be positive and engaging, they argued. Similar to Bijou they also suggested that a strength of the PBIS program was that it could be empirically validated to demonstrate efficacy. Combining the research of Bandura (1965) with Horner’s (Horner, Eberhard, & Sheehan, 1986) prior research, the PBIS model prescribes a series of showing/telling, practicing, and testing followed by praise and/or correction for each academic or behavioral target. Teachers in the PBIS model must actively regulate students, moving about the room and scanning/engaging with students to help limit problems; to make the program of positive reinforcement effective requires active supervision and praise with high fidelity (Sugai & Horner, 2002). Their PBIS model prescribes three tiers of pro-active (rather than re-active) help for students. The primary level is meant to inhibit the development of problem behavior, the second to
remove or reduce factors that promote problem behavior, and the third level is
designed to reduce extreme behaviors or their impact through behavior analysis.

Further work on PBIS programs by Kalke, Glanton, and Cristalli (2007) advised against assuming kids know right from wrong. To better reinforce the student’s learning, they also suggested using shared language and a shared behavior matrix across the educational setting and also in the students’ homes. In agreement with the observation by Sugai and Horner (2002), Kalke, Glanton, and Cristalli (2007) further suggested that some students would need more specific interventions; but, by following the PBIS model, discipline referrals would go down; and, that decline would provide evidence of the model working.

Tying PBIS expectations and positive approach to discipline into codes of conduct was also recommended by Fenning, Theodos, Benner, and Bohanon-Edmonson (2004), who noted that students excluded under codes of conduct, that rely on suspension and expulsion, don’t benefit from instruction while excluded, thus potentially increasing the likelihood for recurrence of problem behaviors. They also observed that where kids thought that punitive disciplinary practices were mean, students were far more amenable to the more positive PBIS practices, especially when instruction was provided at levels commensurate with their abilities. Perhaps contributing to the methods by which PBIS can be empirically validated through a reduction in referrals; Fenning et al. (2004) also suggested that principals could reduce
the number of referrals written by teachers if they set a tone that such referrals were only to be used for major incidents.

Any potential questions about the merits of PBIS data aside, Simonsen and Sugai (2013) point out the great statistical successes of PBIS noting that the program was shown to work better than punitive exclusion practices in ameliorating reports of problem behavior. In some settings PBIS may even be legislatively or judicially prescribed to replace older, failed, exclusionary or punitively-oriented programs; perhaps in part because of that legislative and judicial push. Swain-Bradway, Swoszowski, Boden, and Sprague (2013) found that over 18,000 schools in the US, including alternative schools, were using PBIS systems.

**PBIS and alternative schools.** While PBIS use has been broadly advocated for use in alternative schools, those advocates for PBIS in alternative and secure programs have also suggested that regular behavior support techniques used in mainstream schools may be insufficient in alternative settings (Sprague, Scheuermann, Wang, Nelson, Jolivette, & Vincent, 2013). The advocates who authored that review, which included gathering information from stakeholders in alternative settings where PBIS was used, suggested that common vision, language, and experience, combined with high repetition were crucial, as were rewards for staff as well as students to reinforce behavior and promote fidelity. Relatedly, Hester, Hendrickson, and Gable (2009) suggested that just as students are rewarded by teachers, so too will students
reward teachers who will see that their efforts are paying off as student behavior improves.

Lampron and Gonsoulin (2013) have also argued for PBIS in restrictive settings saying that youth in those settings need social/behavioral skill training and that social skill instruction would help to facilitate safety and could thereby provide an environment for improved academic performance. Those authors theorized that by allowing youth to experience success they might then do better when moved to less restrictive more conventional settings. In the researcher’s view, this latter argument would seem to be at odds with prior research showing limited effectiveness regarding token economies and other reward-based programs and transitions to post alternative settings.

Finally, while some PBIS advocates may argue that PBIS is removed from behaviorism and its tenets, the practitioners of applied behavioral analysis have firmly claimed it as an example of a widely adopted program that’s reflective of behaviorist theories (Johnston, Foxx, Jacobson, Green, & Mulick, 2006). Also, it should be noted that as with the problems in finding a universally applicable theory of moral development, PBIS similarly is not universally effective (Miller & McKevitt, 2015).

Ecological Theory of Learning and Aberrant Behavior

An overview of the ecological theory. Behaviorism theory is far from the only theory of learning currently guiding educational and instructional practice for remediation of conventionally immoral behavior. Some theorists have proposed that
aberrant behavior is actually a product of the ecological environment and that by treating the environment such behavior can be reduced (Webber & Plotts, 2008). Rhodes (1967) argued that the nucleus of the problems exhibited by disturbed children lay in the culture that sanctioned or prohibited the behavior rather than within the child. It’s that tension then, he suggested, that exists between the cultural representative and the cultural violator that creates the disturbance in the environment and is the actual problem at hand rather than the problem being simply the act itself. While most views on behavior would treat the aberrant actor as the problem based on their psyche, chemistry, neurobiology or some other cause internal to the child; Rhodes argued that because culture (and therefore its associated mores as well) is accumulated over centuries it may contain prohibitions or sanctions for behavior that have no basis in the facts of reality as currently experienced by the individuals who compose it. This means that there may be a high number of potentially upsetting behaviors that one may be accused of that are without immediate obvious harm. In this view, it is the ecology around the child that needs improvement so family counseling and a variety of other resources are utilized to shift the culture surrounding the child to a positive and educational one, rather than one with negative emotional-cultural responses.

Such environmental manipulation has since moved beyond the work of Rhodes alone. In education and educational literature, it is a component of PBIS programs which advocate school wide approaches and parental involvement (Sugai & Horner,
The ecological approach is also reflected by Thaler and Sunstein (2008), where they advocate the use of environmental modification to induce behavioral changes. Such changes they suggest can act upon cognition to make certain points of an environment more salient or similarly draw attention to things in such a way as to more frequently compel desired behavior(s).

**BioPhysical Theory of Learning and Aberrant Behavior**

**An overview of the biophysical theory.** In some ways the ecological perspective can be seen as an antithesis to the biophysical theory of aberrant behavior. This model suggests that behavior stems from within the biology of the individual and therefore advises treatment within the individual (Webber & Plotts, 2008). Adherents to this model may suggest the use of food or drug therapies for behavior modification to help children and young people meet community socio-behavioral mores. Wiles, Northstone, Emmett and Lewis (2007) reviewed ‘junk food’ diets to search for a relationship to behavioral problems, and, they initially found a link between problematic food consumption and problematic behavior. However, a later study by Peacock, Lewis, Northstone, and Wiles (2011) found no evidence to support such an association.

While some specific biophysical concerns have been found to be responsive to medications, there are concerns about, and side effects to, the use of such medications. Topiwala and Fazel (2011) reviewed the use of pharmacological agents to manage violence among those with schizophrenia and found that the research
supported positive results. Another review published during that same year (Yee, Large, Kemp, & Nielssen, 2011) also supported the use of pharmacological treatments as a violence prevention technique for those experiencing psychotic illness. However, it should also be noted that mental illness has been indicated in some studies to be a poor, or even completely unhelpful, predictor of violent anti-social behavior; so, it would be arguably unwise to rely solely on a model that suggests that violent anti-social behavior is a product of mental illness (Torrey, Stanley, Monahan, & Steadman, 2008).

The use of pharmacological agents for other behavior disorders like attention-deficit hyperactivity disorder (Zetterqvist, Asherson, Halldner, Langstrom, & Larsson 2013) has its detractors. Popular media (Zaslow, 2005), as well as academic literature, (Kjaersgaard, 2015) raises ethical questions about the effects and use of such drugs on otherwise healthy individuals, who some, might argue, are simply experiencing a lack of environmental fit. Others criticize the idea that personal responsibility and choice may be ignored in favor of viewing poor behavior as a function of biological compulsion (Bratter, 2009).

**Structural neuroscience and the biophysical model.** With regard to biophysical theories of biological, and particularly neurobiological compulsion, neuroscience researchers have conducted a number of studies both of the brains of at risk youths as well as of the brains of others who may be experiencing a variety of anti-social behaviors. These studies have found a variety of existing neural pathways
that can be related to anti-social behaviors (Viding, McCrory, Blakemore, & Frederickson, 2011). Such neurological evidence has been suggested by some researchers to perhaps be of use in helping courts assess criminal responsibility, as various damages to particular pathways can impact what may be seen as ostensibly moral decision making. However, those researchers also note that the brains of individuals are in fact too different to say that a specific damage fully predicts criminality; because many individuals, with a specific type of structural brain damage identified as possibly related to criminality, do not then go on to commit criminal acts (Aharoni, Funk, Sinnott-Armstrong, & Gazzaniga, 2008).

Despite the variations noted above, neuroscience research into impairments in brain structures and the related failure to adhere to social behavioral norms for moral action continues. One general area of concern to neuroscientists is the orbitofrontal cortex (OFC). The OFC has been cited as a common site of damage due to a variety of types of traumatic brain injuries (TBI); and, those TBI have been suggested to impair social cognition (Jonker, Jonker, Scheltens, & Scherder, 2015). Relatedly, TBI has been found to be of high prevalence among the prison population and it's been reported that adults in prison with TBI were younger at prison entry and had higher rates of reoffending post-release (Williams, Mewse, Tonks, Mills, Burgess, & Cordan, 2010). Among young offenders, increased numbers of TBIs were found to be more greatly associated with increased violent offenses (Williams, Mewse, Tonks, Mills, Burgess, & Cordan, 2010). And, TBI was also more independently associated with
experiences of victimization (Vaughn, Salas-Wright, Delisi, & Perron, 2014). Head injury has also been linked to declines in language ability and an increase in violent aggression (Ruocco & Platek, 2006). Further, TBI has been linked to deeper cognitive disturbance than can be revealed simply by standardized testing procedures (Coelho, Ylvisaker, & Turkstra, 2005).

Psychopathic individuals have also been suggested to show Orbital-Frontal Cortex (OFC) dysfunction (Mitchell, Colledge, Leonard, & Blair, 2002). Pain-avoidance and facial recognition have been noted to be impaired in individuals with orbitofrontal impairment (Rolls, 2000). Those facial recognition impairments were not associated with vision impairment, but rather the ability to identify facial expressions (Rolls, Critchley, Mason, & Wakeman, 1996). Similar deficits in recognizing voice expression have also been found (Rolls, 2004). Youths with conduct disorder have been suggested to have disrupted reinforcement signaling involving OFC impairment (Finger, Marsh, Blair, Reid, Sims, Ng, … & Blair, 2011). Further, early physical abuse has been found to be associated with alterations in the OFC and later social difficulties (Hanson, Chung, Avants, Shirtcliff, Gee, Davidson, & Pollak, 2010).

Similarly, early life poverty has been found to be tied to lower OFC volume as well as increased risk of conduct disorder (Holz et al., 2015). Individuals with impulsive aggression were found to have poor OFC activation in reaction to angry faces (Beyer, Munte, Gottlich, & Kramer, 2014; Coccaro, McCloskey, Fitzgerald, &
Phan, 2007). Additionally, patients with OFC lesions were found to be more impulsive, reported more inappropriate behaviors, more subjective anger, less subjective happiness, had a faster subjective sense of time (Berlin, Rolls, & Kischka, 2004) as well as being less likely to express experiences of regret or express anticipation of negative consequences of their actions (Camille, Coricelli, Sallet, Pradat-Diehl, Duhamel, & Sirigu, 2004). Reduced OFC volume has also been found among those with major depression (Bremner, Vythilingam, Vermetten, Nazeer, Adil, Khan, Staib, & Charney, 2002). Despite all of the studies of aggressiveness and anger (Beyer, Munte, Wiechert, Heldmann, & Kramer, 2014), there has been found no direct causal relationship between structural deficiency markers in the OFC for dispositions that could lead to antisocial behavior.

Beyond the OFC, other brain areas and impairments have also been implicated in a variety of potentially problematic behaviors or functions. Alzheimer’s disease has been shown to lead to impaired facial recognition and potentially behavioral disturbances (Hargrave, Maddock, & Stone, 2002). Damage to the prefrontal cortex has been linked to insensitivity to future consequences (Bechara, Damasio, Damasio, & Anderson, 1994). Reduced amygdala response to distress based social cues has been found in youths with callous and unemotional personality traits (Marsh, Finger, Mitchell, Reid, Sims, Kosson, .. & Blair, 2008). Abnormalities in the obitofrontal-paralimbic motivation networks have been found in individuals with conduct disorder and impairments in the fronto-cerebellar attention network have been found in
individuals with ADHD (Rubia, Smith, Halari, Matsukura, Mohammad, Taylor, & Brammer, 2009). Further studies on conduct disorder and oppositional defiant disorder have found impaired reaction to stress and negative stimuli and low punishment sensitivity as well as altered neurotransmitter function (Matthys, Vanderschuren, & Schutter, 2013).

Additionally, youth commonly described as at-risk, as many alternative education students are, have been observed to simultaneously be at risk for a variety of brain impairments. Deficits in the hippocampal structure and function were found in women who experienced childhood sex abuse and PTSD (Bremner, et al., 2003). Socioeconomically disadvantaged children were found to have differing neural response to sound (Skoe, Krizman, & Kraus, 2013). Chronic stress generally has been found to have a negative effect on overall brain health (Lupien, McEwen, Gunnar, & Heim, 2009). Early relational trauma has been indicated to impair right brain development among infants and potentially lead to impaired emotional regulation, among other issues (Schore, 2001). Meanwhile, more general reviews of research have suggested that traumatic stress impairs not only structure but also the function of the brain (Bremner, 2006), an important point, as function and structure have begun to be seen to have a mutually dependent relationship (Doidge, 2007).

Therapy options from a structuralist brain perspective are limited, especially within education, though the potential development of viral gene therapy options have been suggested (Russo, 2008). Many other suggestions follow behaviorist rewards
based models. All of the internal states, brain differences, are biophysical explanations for possible etiologies to differences in behavior that may be perceived as antisocial.

**Psychodynamic Theory of Learning and Aberrant Behavior**

**Psychodynamic learning and education.** Beyond the behaviorist, ecological, and biophysical theories of aberrant behavior, other theories exist as well. The psychodynamic theory is among them. The psychodynamic understanding of antisocial or otherwise aberrant behavior among youth suggests that their internal psychological processes are dysfunctional (Webber & Plotts, 2008). As such, the goal of psychodynamic treatment is to assist the individual to adjust to a more healthy level of development. Glasser (1969) criticized schools for downgrading individual problem solving and thinking and for promoting knowledge gathering and remembering in their place. This precluded children, he argued, from participating in meaningful involvement in the world surrounding them. It was this preclusion from that meaningful involvement, he contended, that would have schools be complicit in impeding the development of a child’s morality; because students were thereby deprived the opportunity to have rational discussions and evaluations of their own behavior in non-threatening and non-punitive ways. These discussions and evaluations, he posited, might allow young people to personally construct the reasons for good action. Thus, he advised, school rules should be flexible and reasonable and
arrived at through negotiation to permit the opportunity for such reasoning. In some regards the alternative school movement may be seen to follow this line of thought.

Complementary to Glasser’s view of the necessity of individual learning for moral development, Abramowitz and Macari (1972) suggested that values couldn’t necessarily be transmitted from adults to children as a school might attempt to do. Instead, they advocated for a values-clarification process to help students discern their own values; and, thereby, develop their own behavior. This development of behavior was to be done by inquiring about the individual child’s thoughts and feelings and targeting inconsistencies.

In keeping with the psychodynamic school of thought, academic literature about affective teaching advises (Tomme & Wendt, 1993) allowing kids to engage in cooperative activities designed to convey ideals such as honesty and respect for others’ rights and feelings. Maslow (1968) suggested that, in addition to such opportunities, a child’s feeling of safety needed to be considered so that the child could then experience growth. This idea is complemented by more recent research that found that negative outcomes associated with low birth weight and family disadvantage could be modified by the provision of emotionally responsive and sensitive caregiving in early infancy (Laucht, Esser, & Schmidt, 2001). Meanwhile, further studies investigating social perception of threat (or ability to determine social cues of threat) found that lack of sleep or poor sleep could significantly impair people’s judgment in that regard (Goldstein-Piekarski, Greer, Saletin, & Walker,
This finding showed an interaction between internal states and behavior. This is a particularly pertinent finding given prior work suggesting that teens with poor academic performance which is more often experienced by alternative school youth, have been found to be at heightened risk for disordered sleep (Perez-Chada, Perez-Lloret, Videla, Cardani, Bergna, Fernández-Acquier, ... & Drake, 2007). Further, a relationship between lack of sleep and ethical misconduct has also been identified in research (Barnes, Schaubroeck, Huth, & Ghumman, 2011).

Other psychodynamic theorists include Rompelman (2002) who suggested there was a symbiotic relationship between the affective domain and the cognitive domain. He argued that learning is a change in behavior due to an experience (or a change in mental events because of an experience). Meanwhile Roundy (1994) advised a program of counseling for at-risk youth as well as their families.

**Evaluating psychodynamic treatments.** Psychodynamic approaches, like Roundy’s as well as those of others, to better align individuals’ behavior to social convention get further support from Mullainathan and Shafir (2013) who noted that scarcity, whether absolute or comparative, for individuals can shift cognition. Mullainathan and Shafir argued that these shifts in cognition caused thinking to be more short term and less flexible. Further they argued that an individual’s focus on that scarcity can overtake the cognitive bandwidth available to an individual thus impairing learning and affecting choice and behavior. Along those lines Bruner and
Goodman (1947) found that perception of monetary objects of objective size varied between children of impoverished backgrounds and non-impoverished backgrounds. Leichsenring, Rabung, and Leibing’s (2004) meta-analysis of psychodynamic psychotherapy for specific psychiatric disorders found it to be as effective as cognitive therapies and more effective than behavioral treatments. With regard to educational settings, however, Graubard (1973) observed that psychodynamic treatments were of limited availability in schools. While there are contemporary authors, Chorost and Luchow (1991) for instance, advocating for values clarification as a psychodynamic approach to remedying behavioral disturbances; Kohn (1997) suggested that approach has declined significantly in popularity over time. Additionally with regard to values clarification, such endeavors, when practiced with children, may lead to the sort of problems suggested in this chapter’s earlier review of values clarification as a tool for promoting pro-social moral development in line with the broader pro-social majority culture, as students may clarify their way to anti-social values or orientations.

**Cognitive Theory of Learning and Aberrant Behavior**

*An introduction to the cognitive theory of learning.* Another prominent theory regarding learning and behavior, perhaps more commonly employed than psychodynamic theory, is the cognitive theory of learning. The cognitive theory of learning and moral behavior suggests that faulty cognition or constructions of reality are to blame for failure to adhere to cultural behavior conventions (Webber & Plotts, 2008). Adherents to this theory suggest that impairments in cognition (thinking) and
emotion (feeling) can result in poor behavior. Thus changing the thinking becomes imperative to improving behavior. The cognitive theory’s indication of the importance of, and variance in, perception gets support from early anthropological investigations (Jastrow, 1902; Rivers, 1901). These researchers found, that even in instances where visual acuity was similar, cultural differences made certain objects or points in the field of view more salient. However, once individuals shared their knowledge with each other, the visibility of formerly culturally specific objects increased. Work by Bruner (1951) suggested that such individual perceptual differences existed for judging the warmth or coldness of individuals as well as the threat of a potential situation; so, disordered behavior could be understood as a difference in salience or perception of certain cues. The significance and depth of these differences in perception were supported by later work that argued that an individual’s uniquely developed neurophysiology was responsible for attending to or inhibiting certain cues (Bruner & Klein, 1960).

The proposition that perception among individuals may vary complements the observation by Cole and Bruner (1971); outgroups, who are suggested to be deficient in competency by the majority group may rather be differently competent in many regards that are more salient to the outgroup. So while outgroup members may lack the perceptions necessary to have maximal competency with regard to participation in the majority culture, the members of outgroups may have other perceptions and abilities allowing them to be competent within the general niche occupied by the
outgroup. This argument, that outgroup members’ differing perceptions may provide varying social competencies within majority group environments, is further complemented by the work of Bruner and Krech (1950). Their work predicted that behavior is dependent on perception; and, Krech’s additional assertion (1950) that learning can shift perception over time, thus allowing outgroup individuals to potentially share, or at least recognize, the ingroup perception. In contrast to behaviorism, Krech’s work (1950) also suggested that even if two individuals demonstrate the same products or outcomes, their learning may well be different based on their internal differences; so, judging products or outcomes alone would then be considered an imperfect measure of learning, which directly contrasts with the arguments of behaviorists.

Wood (1989) suggested that rather than culture alone, impaired language could impact perception arguing that deaf children may receive inhibited and distorted access to the cultural bearers who would otherwise help them to construct perception of culture and reality (rather than having a deficit of experience). This inhibited or distorted access to culture, Wood argued, could cause a lack of conventional success. Wood’s argument thus fit with the later findings by Hart and Risley (1995) regarding the success rates of children from low language homes. The importance of language for metacognition, and to then perhaps advance or change one's perception and experience has additionally been described by Bruner (1996) who argued that behaviorism’s practice of explaining what a child does is insufficient. So, inquiry
should be made into what children think they are doing and why they are doing their behaviors. Bruner suggested that individuals do not act upon the world directly, but rather they act on perceptions of their world based on the beliefs they hold. This seems to concur with earlier work by Witkin (1949), who suggested that even in fairly well structured environments, differences in perception would still exist. In light of the work by Krech, Witkin, and Wood; Bruner’s (1996) suggested that it is not enough for instructors to just show learners behaviors and have them replicate the acts, but learners also need to be provided conceptual explanations to make salient the desired components.

Indeed the perception of “self” may be a cultural phenomenon. For example, some unschooled members of non-Western cultures do not distinguish between their own thoughts and statements about a thing and the thing- the object and the thinking are understood to be one (Greenfield & Bruner, 1966). This overlap of a person and object may support the idea that everyone is somewhat limited in classification ability based on what’s readily linguistically available (more on this notion in the next section).

**Interventions based on cognitive theory.** Cultural and linguistic differences aside, a number of remediation techniques for aberrant or conventionally immoral behavior exist that are based on cognitive theory. Many of these techniques involve some type of psychotherapy. Early results (Schmideberg, 1965) suggested that psychotherapy could reduce recidivism in some cases and later studies (Blattman,
Jamison, & Sheridan, 2015) continued to support that finding. Studies among youth in Chicago (Heller, Shah, Guryan, Ludwig, Mullainathan, & Pollack, 2015) suggested that while youth generally may be prone to hasty action, disadvantaged youths, based on their backgrounds, are prone to more negative (as deemed by the dominant culture) fast actions than others. Thus it was argued that if these youth could cognitively interrupt those thought patterns they may be able to be successful in effecting changes in their own behavior, to better adjust to the expectations and social mores of the dominant culture (and also get the benefit of improved life outcomes - at least as judged by that culture). This work may be seen as a natural progression of the ideas of Bargh and Ferguson (2000) who wrote that automaticity does exist in terms of behavioral response as behaviorists had suggested; but, as cognitive psychologists suggested, those responses may be changed as well as the subsequent finding by Byrd, Loeber, and Pardini (2014) that cognitive behavioral therapy could be used successfully with youths who demonstrate behaviors classified as antisocial. These findings supported the earlier contention of Bever, Mehler, and Epstein (1968) that the cognitive process mattered more than the cognitive structure.

A variety of cognitive therapy approaches exist and some are more likely to be found in use than others. Weinrach (1995) wrote, with concern, that Rational Emotive Behavior Therapy (REBT) may be perceived as encouraging counselors to ignore client’s emotions; a perception that Ellis (2000) disputed, though he suggested that accusation may have been possibly true in earlier iterations of that therapy. Ellis
(2000) also noted that attempts by cognitive theorists to help individuals shouldn’t be seen as ignoring the impact of larger societal issues on individuals. That caution against potentially ignoring the larger context in which the individual exists may be seen as related to Bruner’s (1975) assessment that some cultural-perceptual differences experienced by individuals may be quite logical in nature. Individuals from impoverished backgrounds may be more subject to having short range/restricted goals and thinking. In those instances, Bruner wrote, it may make sense to try to beat the system, not use it. Thus kids from such backgrounds may need a rationale and explanations to cognitively understand how other logic may help them further in long-term endeavors and to overcome perceptions based in generational poverty.

Cognitive approaches also stress the role of irrational or irregular beliefs or interpretations of scenarios as a potential cause for aberrant behavior. Bridges and Harnish (2010) suggested that identifying irrational beliefs played a central role in addressing a variety of disorders and that by changing those beliefs individuals could change their experiences. Relatedly, an earlier study into the social information processing of aggressive children found that they were more likely to perceive others to be hostile (Quiggle, Garber, Panak, & Dodge, 1992). Cognitive behavior therapies (CBT) are not exclusively successful; however, studies of interventions with bullies (McLaughlin, 2009) and men who abuse their partner (Jayasekara, 2008) found CBT, at least as studied, to be unsuccessful in ameliorating those behaviors. It has been suggested (Cornet, de Kogel, Nijman, Raine, & van der Laan, 2014) that it may be that
certain neurobiological factors can impair, or at least be predictive of the success of, the outcomes of CBT therapy with individuals with antisocial behavior. While often neurophysiology is misunderstood to be fixed, a new theory of learning has recently been developed that combines more dynamic understandings of how brain processes work aligned with research from the fields of both cognitive psychology and also language. That theory is the Neuro-Semantic Language Learning Theory (NLLT; Arwood, 2011).

The prior section reviewed literature regarding the history, development, and application of various learning theories as well as their related criticisms particularly with regards to instruction for pro-social moral development. The next section will introduce support for a new learning theory that combines elements of cognitive psychology with information from the language and neuroscience disciplines which support that theory. That theory and the literature supporting it have been instrumental to the researcher’s development of a new model for moral development which may be found in Figure 2.1 at the end of this section. Figure 2.2, similarly located at the end of this section, shows how the three disciplines of language, neuroscience, and cognitive psychology overlap to support the researcher’s development of Figure 2.1. Those figures are followed by Table 2.2 which briefly summarizes the applications of the various learning theories presented with regard to their use in remediating anti-social behavior.
The Neuro-Semantic Language Learning Theory

An Introduction to Neuro-Semantic Language Learning Theory

The Neuro-Semantic Language Learning Theory (NLLT) suggests that behavior, moral behavior included, stems from the acquisition of functional language (Arwood, 2011). According to the theory, language names concepts for cognition as part of a four-tier learning model, as opposed to the traditional two-tier model which suggests that learning and behavior are solely series of patterned responses to stimuli. Research in line with the NLLT suggests that many adults in society operate at levels of language acquisition that are sub-maximal either all of the time or at least part of the time. According to the theory, it is at these lower levels of language function that thinking, which directs action, may lack pro-social consideration of others; thus, potentially causing individuals to run afoul of socio-cultural expectations for moral behavior. Such preoperational, self-focused, or egocentric thinking has been identified by Baron-Cohen (2011) and Young (1999) as prevalent or even potentially causative among anti-social actors with regard to their anti-social actions. Additionally, Piaget (1947) argued that adherence to rules or social conventions and development of morals may only be available to those whose development is at the concrete and formal levels respectively. Concrete and then formal development are the stages that Piaget suggested typically follow the pre-operational stage.

Philosophically the NLLT draws on the work of Peirce, 1839-1914, who suggested that an individual’s past knowledge was the only thing which one could
draw on in action (1905) and who later wrote that morality itself was generated from an “ought-to-be of conduct” and an “ought-to-be of thought” (1906, p. 510). Both ought to be of conduct and ought to be of thought require self-control and arise from the (potential) existence of self-control, which then allows an individual to diverge his or her thought and actions from otherwise normal courses.

Further, Peirce’s arguments (Pape, 1997) are concordant with those of Arwood (2011) who observed, like Peirce, that thinking involved a logical deep structure; and, Arwood noted, in English that logical structure can be represented through use of propositions. Propositions are multiple arguments joined together to create a whole that is greater than sum of its parts (Arwood, 2011). These propositions in English typically combine arguments through time elements, but such time elements in English are generally auditory in nature and not native to the way most learners acquire input today.

In accordance with contemporary neuroscience (Baars & Gage, 2010), the NLLT observes that the primary ways the learner receives input is via receptors. Research by Zeman, Deward, and Della Sala (2015), as well as Arwood (2011), suggests that most learners now use a visual system for learning and cognition making visual inputs of primary importance. Arwood observed conventional scholastic instruction is carried out in an auditory way, which puts visual systems at odds. The visual system observes interplay of light waves on surfaces and objects and then overlays that visual stimuli so the brain stem and limbic patterns can then become
meaningful semantic concepts. The concepts become linked via networks in the brain. This follows the Hebbian learning principle that neurons that fire together wire together (Baars & Gage, 2010). Auditory semantic features meanwhile, of which time is one, can similarly travel through receptor channels from the ear to the brain and form the basis of auditory learning. Arwood and others (Zeman, Dewar, & Della Sala, 2015) suggest that auditory thinking is native for a limited number of today’s learners in the US, which may help to indicate why visual thinkers with limited language acquisition struggle to gain access to conventions, including social conventions, communicated through auditory English culture. Acquired concepts, which are actually represented in neural networks, can then be tagged with language and utilize acquired grammar to compose the neural connections among concepts (Gallese & Lakoff, 2005) (see NLLT and functional neuroscience below).

Because, as Arwood (2011) notes, learning language is social and cultural in nature, a language like English that is auditory in nature, rather than visual, will be at odds with how children think. This could potentially predispose those visual thinkers to antisocial actions that don’t match the social mores or conventions of their surroundings as those social mores and conventions are based on auditory culture. This argument is in keeping with work by Christiansen and Chater (2008) who argued that language reflected a social agreement for creating shared meaning and, that by acquiring a language, one was also acquiring that culture.
Arwood’s argument, put another way, suggests that if children have limited acquisition of cultural conventions, they’ll likely show limited acquisition of the functional language that ascribes those conventions. As Arwood (1983) suggests, a breakdown in the linguistic system of a child with difficulties in language acquisition is representative of a difficulty in socio-cognitive acquisition as well. This is reflective of the idea that acquired language both constructs the points of interest and reasoning about those points (Chen, 2013) and that language modulates what’s seen, felt, spoken about, and done in terms of behavior (Ribes-Inesta, 2006). However, most linguists’ inquiries only examine conventions (Arwood, 1983) and structures (Arwood, 2011) not functional language; so, language researchers often don’t actually assess the examinee’s language system. Suggestions exist that the same disconnect between language and socio-cognitive conceptualization may be true of educators as well (Poeppel, Emmorey, Hickok, & Pylkannen, 2012). Meanwhile, some neuroscientists have suggested that the language system is integral to cognitive function and that acquired grammar functions in the brain, in even non-linguistic tasks, happen synergistically across the brain (Pulvermüller, 1999).

**NLLT and the Individual Learner**

Another important principle of the NLLT theory, in addition to its consideration of functional language, is that learning is based on the individual learner’s learning system. Each individual learner takes in information via his or her own sensory system and organizes it according to personal experience and knowledge,
which is also why Arwood’s (2011) work argues that learning functional language is actually a process of acquisition. This is congruent with the work of cognitive psychologists who have argued that the individual’s experience matters (see above) and brain research that indicates that each individual’s brain is unique (Jensen, 2000). Arwood’s work on educational practices and the importance of each learner receiving meaningful input is congruent with observations by Rogers (1969) who suggested that individually meaningful learning environments improved behavior of students. More recently, individually meaningful learning has been suggested by Zwiers, O’Hara, and Pritchard (2014) as a means for successful instruction to meet Common Core standards in linguistically diverse classrooms. Such learner centered approaches may be also seen to be an alternative to what Lubeck and Garrett (1990) allege as a cultural supremacy perspective inherent in other models of child development that draw on deficit-based models of learning.

In its support for recognizing the individual learner as crucial to the learning process, Arwood’s NLLT compares favorably with the work of other learning theorists’ works including Bruner’s (1961) suggestion that learners learn at their own rate, Elkjaer’s ideas (2009) that teaching should be based on an individual’s own experiences (though Elkjaer disliked that word), and van Lier’s (2008) suggestion that language acquisition is dependent on the learner’s activity and initiative. Van Lier also suggested that classrooms can reflect very different levels of language support for individual development of agency. Work by Heath (1983) and Peterson (2014)
suggests that learners advance their functional literacy when learning has meaning, purpose, and context. Relatedly, Bruner (1961) argued that it is the material that is organized according to a person’s own cognitive structures which will then later be most accessible to them. Further research (Cole & Bruner, 1971) suggested that this can include allowing for the use of stories relevant to the individual. Evidence from neuroscience may provide further support for the relevance of imagining as may be involved in the use of stories, to action or doing, as both imagining and doing have been said to share neural substrates (Gallese & Lakoff, 2005).

This work is also congruent with recent pushes, which perhaps echo earlier movements, to shift instruction to a learner-centered paradigm. Such a paradigm shift receives support in higher education from Barr and Tagg (1995) among others who argue that teachers, for the most part, have an inherent inclination to want to see their students learn. Learner-centered curricula have additionally been argued to improve learning in diverse classroom settings (Brown, 2003; Heath, 1983). Further, a meta-analysis (Cornelius-White, 2007) found that learner-centered teacher-student relationships were linked to improved academic and behavioral outcomes for students when compared to other educational innovations suggesting that the switch to a learner-centered paradigm associated with the NLLT is potentially the most beneficial change educational programs could make for their students. Such a shift would involve moving away from the use of many other older learning theories, behaviorism among them.
NLLT Versus Behaviorism

One important difference between the NLLT and behaviorism is the way the NLLT defines learning. NLLT explains how learning is more than a response to stimuli but that learning is actually layers of neuro-semantic acquisition. This means that the NLLT views cognition as a process of acquisition and language names those concepts. Therefore the NLLT places emphasis on the learning processes, not the products like teaching words or rules. For example, the NLLT recognizes that simply verbalizing rules, a process that can be seen as essentially echoing the pattern of sounds one heard, isn’t the same as knowing the concepts of the rule; and, even people who can echo or state a rule may not be able to follow the rule or show the concomitant behaviors (Arwood, 2011). The argument that saying isn’t knowing is supported by the work of many other authors (Alt, Plante, & Creusere, 2004; Beer, John, Scabini, & Knight, 2006; McGregor, Newman, Reilly, & Capone, 2002; Rolls, Hornak, Wade, & McGrath, 1994).

While instances of a mismatch between what can be said and what has actually been functionally acquired may be cited in education as evidence of language impairments this researcher believes that such mismatches are more accurately seen as problems in the assumptions made in the paradigm from which such assessments are generated. The treatment of “words” such as “steal” in the paradigm behaviorism only looks at the ability to produce the word or rule in response to stimuli such as “I don’t steal. Stealing is bad. I am not bad” (for more on behaviorism see Behaviorism). The
assertion that verbally producing the sounds of a word isn’t the same as possessing semantic knowledge of the word is complemented by the work of Murnane, Sawhill, and Snow (2012). In their advocacy for greater functional literacy and content attainment through broader (functional) vocabulary, they’ve argued that reading is more than saying words or decoding text. That suggestion regarding room for growth in current practice is joined by neuroscience authors (Poeppel, Emmorey, Hickok, & Pylkannen, 2012) who have written on the problem of educators continuing to rely on outdated and incorrect models of how language and language disorders work.

Further, and unlike behaviorist learning theories which may prescribe time-based remediation of skills to try to remedy perceived deficits through teaching behavior, the NLLT premise suggests that concepts, the root of meaningful learning, are actually responsible for behavior. Concepts that represent behavior are refined, commensurate with the refinement of their underlying neural networks, through social and linguistic interactions. This finding is in keeping with the research of Macnamara, Hambrick, and Oswald (2013) who found that deliberate practice is of nearly no utility for the educational or professional domains, as practice does not provide the refinement necessary for increasing one’s depth of concepts.

**NLLT and Functional Neuroscience**

Beyond being at odds with behaviorism, the NLLT also runs a bit counter to biophysical theories of behavioral aberrance. One difference between the NLLT and biophysical or structuralist neuroscience models of learning and behavior stems from
the NLLT view that the brain functions synergistically, rather than in a compartmentalized fashion. In this way the NLLT rejects the biophysical suggestion that structural impairments are wholly responsible for the generation of immoral or aberrant behavior. Arwood (1983; 2011) and others (Bookheimer, 2002; Sakai, 2005) describe language as operating in a similarly synergistic manner. This view is supported by Ghazanfar and Schroeder (2006) who suggested that most or even all neocortex forces were multisensory in nature and that the senses don’t operate independently during cognition (at least not in the field). Koelewijn, Bronkhorst, and Theeuwes (2010) observed that multisensory integration combined with crossmodal attention have impact on individual perception of the world and that these processes happen in multiple brain sections. Further agreement comes from Gallese and Lakoff (2005) who observed that the development of concepts, which they argue are elementary to reason and linguistic meaning, have sensory-motor system involvement in their construction. This reflects an understanding of the language acquisition process argued for by Arwood (2011), which Arwood also suggests is responsible for cognitive growth, whereby individuals combine sensory integration to form concepts developed from the inhibition of non-meaningful inputs increasing thinking.

Unlike structural neuroscience and the biophysical model of aberrant behavior, the NLLT doesn’t recognize the brain structures themselves as fixed, but rather agrees with contemporary neuroscientists (Poeppel, Emorey, Hickok, & Pylkannen, 2012) that brain function can in fact impact brain structure via neurogenesis or
neuroplasticity reflecting the interplay of nature and nurture (epigenetics). Rutter (1978) described how even those potentially genetically predisposed to criminal behavior might find themselves less likely to be involved in such when raised in appropriate nurturing or pro-social environments. More recently Doidge (2007) described neuroscience research findings that indicated that not only does neuroplasticity exist but that CBT, which employs an individual’s functional language, could be seen to change the brain. Work by Holmes and Wolff (2012; 2013) suggested that language could, in fact, drive deep categorical perception at the pre-cognitive level potentially shaping brain structure, potentially suppressing (or inhibiting) non-meaningful input, an indication that Holmes and Wolff suggested could support Whorf’s views of language’s ability to structurally shape perception. Further evidence of the brain’s function being capable beyond some structural limitations that may occur is seen in the ability of children who suffer brain injury to the left hemisphere to still recover language function (Bechara, 2004). Those findings were in keeping with research regarding written language which found writing ability was not tied to a single specific brain area (Ardila, 2004).

Similarly to the argument that the brain is synergistic in nature, is Arwood’s (1983) argument for a synergistic view of language. Just as the functional or dynamic view of brain function draws support from neuroscience, this synergistic view of language function in the brain draws support from contemporary neuroscience as well (Bookheimer, 2002; Poeppel, Emorey, Hickok, & Pylkannen, 2012). Mohr,
Pulvermuller, Mittelstadt, and Rayman (1996) have noted that words are cortically represented in wide networks lending to the idea that words have contextual/perceptual meanings. This means that words are therefore greater than simply sounds, which is also true of sign language (Pulvermuller, 2013). These widespread networks represent conceptual features that form long-term memories and include distinct sensory and motor brain areas reflecting the conditions of linguistic concept acquisition (Kiefer & Pulvermuller, 2012). This argument seems logical given previous work that suggested that words have to call to mind self-perceptions of specific sensory perceptions and motor actions (Pulvermuller, 2005). Thus when language problems do exist, trouble with specific semantic categories, for example, can reflect brain disease (Pulvermuller, 2010). This supports a functional view of the way language functions in the brain; that, language is semantically acquired rather than organized by lexical class (Moseley & Pulvermuller, 2014).

The NLLT’s explanation of the importance of language acquisition might also explain the differences in rates and neurophysiology of conduct disorder and oppositional defiant disorder experienced by boys and girls (Michalska, Decety, Zeffiro, & Lahey, 2015). This possibility arises from using an NLLT lens combined with the documented heightened language acquisition among girls compared to boys. That heightened language acquisition has been argued to be provided by the opportunities Reese and Fivush (1993) found afforded to girls based on common gender-biases in child-rearing. The example afforded by the work of Reese and
Fivush, however, is far from the only evidence suggesting the great importance of language acquisition, a point which may be made clearer by the literature reviewed in the next section of this chapter.

**In Defense of the Importance of Language to Behavior and Cognition**

**Adding Language to Cognitive Psychology**

While Arwood’s NLLT connects language to neuroscience and cognitive psychology, her work isn’t the only writing to note the dramatic importance of language and language acquisition. Instead, the NLLT draws on the work of many prior and contemporary linguistic theorists and researchers. Among these is Lenneberg (1962) who suggested that while some amount of cognition without language may be possible, language widens the cognitive horizon. Indeed language has been suggested to reveal the saliency of the parts of an image or scene (or event/situation) (Fillmore, 1977), thus without language such may not even be perceived. Lenneberg’s (1962) argument regarding language and cognition is based on the background that language informed cognition provides the ability to manipulate (and share) concepts when the language is formed in such a manner as to be acquirable; a process that he noted was different from simple vocal imitation.

Later Lenneberg (1969) observed that language deficits that occurred in kids who heard no language (or little or restricted language) couldn’t simply be remediated by telling them the words that were desired for them to acquire, as the process of acquiring language was greater than the function of matching acoustic patterns to
symbols. That doesn’t, however, mean that low-language (or zero-language) children can’t learn language at all, even in cases where structural impairments to language acquisition existed, the function of the brain mattered more than the structure. Lenneberg’s ideas drew support from Brown’s (1958) assessment that language acquisition could raise IQ in formerly underdeveloped kids. Brown’s research might suggest a potential remedy to the unfortunate self-reinforcing cycle. McCrory (2001) observed that children with low cognition showed aggressiveness, and resulting authoritarian treatment by schools and families. In fact, the tie between the development of (lexical and propositional) linguistic semantics and the development of cognition has been described as unshakeable by Curtiss (1989) who also contended that the pragmatic aspects of language demonstrated a sort of bridge between social knowledge and intellectual function.

Language, Cognition, and Abstract Thought

Language, in fact, is so informing to, and powerful in, the development of cognition in humans that human cognition can’t be considered as being similar to animal cognition. Human use of language informs the whole of their cognition, Lenneberg (1969) contended. Even later (1970) he wrote that linguistic communication represented a capacity for strikingly similar relational operations between (human) individuals and that the respondent’s and the speaker’s cognitive interpretations were crucial no matter how simple the sentence shared between them might be. This, he suggested, was because language can represent spatial structures
rather than just simple objects; thus, an item like a table or house might be spoken of in such a manner as to reference all tables or houses as a semantic class rather than simply as a concrete singular example.

With regard to the advancement of language and abstract thought, work by Ganea and Harris (2010) found that older students were generally better able to use verbal rules to update their actions, essentially meaning they could do what they were told to do. This could be a direct implication of research that has shown that high school educated students, who are more likely to have complete language at the formal level, were more likely to be able to use language abstractly than similarly aged peers who were not attending school (Sharp & Cole, 1972) and thus likely had less formal functional language development. Given that alternative school students like those in this study frequently have worse attendance rates than their peers; they too, may have such language deficit, and as such, don’t update their behavior to match what they’re told as would be expected of typically developing high school age students.

Relatedly, language, Bruner (1964) argued, was a powerful technology that could not only be used to communicate interpersonally but also for encoding reality intrapersonally. Additionally, he suggested, language afforded one the ability to consider the immediate and non-immediate (displacement) and also to perform in line with conventional rules. Further, he contended that as language increased during adolescence it allowed for abstract thought and consideration of options especially after ages 5-7. Alternately, he suggested, for those deprived of language advancement
there would be little ability to abstractly organize; and, the demonstration of more elaborate cognitive abilities would not be possible. Arguably (and perhaps remarkably), one example of this sort of lack of abstract ability with regard to language among children is found with regard to the *adult* practice of categorizing and classifying words whereas children were observed (Brown & Berko, 1960) to gain language as a system and only much later were they able to match the adult practice of linguistic categorization and classification of language structures. This finding is in keeping with the NLLT’s provision that teaching language rules before language has been acquired is quite potentially an exercise in futility in terms of assisting in actual language acquisition.

**Defining Language Function**

While early linguists may have viewed language through more categorical or structural lenses, a number of linguists eventually came to recognize language *function* as a useful and potentially better frame for understanding language and its analysis (Brown, 1986). This view was in line with the work of Lenneberg (1973) who argued that knowing a language involved using that language for thinking. Further, linguists recognized that language function generally improved as an individual grew older (Halliday, 1976). Though that was also found to not be true in all cases, with some estimating that as many as 30% of adults in the US had restricted or pre-language function (Arwood, 2011) which limits their capacity to use language for thinking, reading, writing, calculating, problem solving, speaking, listening, and viewing.
Alternately, individuals with maximal levels of language function should be able to use language for all acts of literacy.

With regard to language function milestones for neurotypical learners, usually by ages 7-11, youth should be able to use their acquired functional language to share about events displaced from the here and now and include in that sharing information about who, what, and where; while also sometimes including when, why, and how (Arwood, 2011). Further, individuals with language function at the linguistic or formal level (age 11+) should be able to fully utilize the language functions of displacement, semanticity, redundancy, flexibility, and productivity (Arwood, 1991; 2011; Brown, 1970). In their maximal development, these qualities serve to provide linguistic-level language users with the ability to expand, extend, and modulate their language for cognitive and communicative endeavors across a range of mediums about a variety of topics (Arwood, 2011).
Table 2.1

*Summary of the expanded language functions from Arwood’s* (2011) *Table 3.1*

<table>
<thead>
<tr>
<th>Function name</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement</td>
<td>Ideas are separate from the physical existence of people, actions, and objects that the ideas represent. Ideas can be transmitted across time and space to others who can share those ideas. An example may be writing about historical or future events.</td>
</tr>
<tr>
<td>Semanticity</td>
<td>Concepts increase in complexity and meanings can be shared about higher order topics or subjects with appropriate specificity so as to communicate these complex meanings. An example may be speaking about freedom of the speech, a component of the First Amendment to the US Constitution, as a fundamental right.</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Concepts can be used in a variety of ways allowing for variety in conversation about topics and ability to hold those conversations in varying venues as well as unknown new venues.</td>
</tr>
<tr>
<td>Productivity</td>
<td>Concepts may be both written about and spoken about and effectively communicated to others through writing and speaking that meets language conventions. Productivity also includes the ability to listen to or view others speaking and writing in conventional English.</td>
</tr>
<tr>
<td>Redundancy</td>
<td>Concepts increase in meaning to allow for efficient and effective communication with others. Low redundancy allows for more efficient and effective communication.</td>
</tr>
</tbody>
</table>

**Language, Agency, and Morality**

Language’s facilitating of thinking and cognition appears to extend to moral development as well. For example, Poulshock (2006) has argued that language development is fundamental to the creation of morals. That argument is
complemented by Taylor’s (1985) explanation that human moral agency is a product of acquisition of abstract human social concepts which allows the development of morality (abstract concepts being a function of functional language acquisition as described above). Taylor wrote that a person needed to be afforded choice and opportunity in order to reflect and develop themselves as moral agents. Taylor suggested that the agent’s vision for what the agent is doing matters and is discreet until the agent (linguistically) explains it to the world. Taylor criticized the application of classical models of learning that were based on animals as inadequate to explain human learning, given that feelings and perceptions exist within humans that are not known but to the individual agent. Thus he suggested behaviorism and related efforts are not useful for the investigation of moral behavior of agents. Instead, he argued, understanding behavior required the consideration of culture and the numerous variations among people, their perceptions, and the timing of events. One’s intention and the product of one’s actions may differ as someone may intend for one outcome and produce another wholly unintended outcome. A warning shot that is unintentionally deadly for the receiver of the warning shot is one such example. In such cases however it is only language which affords us the opportunity to examine all the perspectives involved, Taylor argued. The agent’s perception must matter for there to be agency; and, agency is required for morality, Taylor insisted.

Taylor’s (1985) analysis of the fundamental importance of language acquisition did not end there though. Because language can facilitate new thinking, he
wrote, changes in thinking, especially with new language, are possible. Relatedly, according to Taylor, as people develop language of self (self-understanding/feelings), they’re able to become clearer about themselves and their thinking. In reverse, thinking about objects in the world may become clearer as agents learn to what they should attend. Therefore it is through language that individuals gain an articulated view of the world; and, are able to become conscious and explicitly aware of things, meaning that humans are the sole capable moral agents in existence; because, they alone have language (Taylor, 1985).

Taylor’s line of thought that articulated constructions of the world, contributing to individual agency with regard to the associated expectations of such constructions being governed by language acquisition, is supported by the work of Cook-Gumperz (1973). Her work found that child development is in fact the acquisition of cultural agency; and, an individual group member’s ability to cognitively and linguistically interact within the social environment provides options for social behavior. Thus, Cook-Gumperz supports Taylor’s idea that language makes social events and structures visible and allows a child to be an agentive member of a social group who can refine his/her understanding of social situations through language.

The ability to develop agency through language acquisition was additionally supported by Bohanek, Marin, Fivush, and Duke (2006) who found that when all members of a family had their perspectives included in a family conversation, youth in
the family were more likely to develop an internal locus of control (as well as higher self-esteem). This work was part of a series of investigations that Fivush participated in that found that families’ styles of talking about the past were important to the development of the child’s linguistic tools for agency. Reese and Fivush (1993) found that more talkative/elaborative families produced more elaborative kids. Families that used greater narrative structure produced kids with greater language usage (ibid.). Such increases in self-narrative ability might be indicative of the reflective thought suggested by Taylor to be required for the development of moral agency.

The idea that family language experiences, which earlier parts of this review of literature suggested to likely be limited among alternative school youth like those in this study, are important for the development of agency was additionally supported by Nelson (1993). Nelson suggested that the social function of language allows both representation of events in the mind as well as interpersonal sharing thus providing a mechanism for supporting the development of individual semantic memory. Fivush (2011) continued this line of support regarding the importance of the social function of language to the development of individual agency. Her work found that while culture defines canonical methods, means, and expectations for interaction shared by individuals in a shared representation of reality, kids learn how to be in society through adult provided structures and opportunities. Those adult, and typically family, provided structures and opportunities allow for language acquisition permitting one to personally organize personal experience. Such personal organization of experience as
seems to again contribute to the capacity for reflective thought argued by Taylor (1985) to be required for the development of agency for moral action and cognition.

**Language and Culture**

Broadly, the link between language and culture and thereby potentially the argument for moral development within a culture being a process of acquiring the language of that culture, has been made by a number of authors in addition to Bruner. Whorf (1956) observed that different cultures can have different explanations for events in reality that were equally justifiable pragmatically by their members’ cognitive experiences. He also suggested that people’s actions were determined by their own understanding of the world based on the language they’d acquired. In Whorf’s view, a person smoking near empty gas barrels for instance, a potentially risky and self-indulgent endeavor, was commensurate with the smoker’s linguistic expectations based on the linguistically generated perception of the word ‘empty’; meaning that such barrels contained nothing, when in fact they contained highly combustible gasoline vapors.

Whorf also observed that words within a culture change over time to fit common usage and that acquisition of differing languages structures may cause members of different cultures to dissect differently parts of nature, or even whole scenes. Though that isn’t to say that by sharing language they may not also eventually agree given that Whorf observed that language can change. This echoes the earlier anthropological findings of Rivers (1901) and Jastrow (1902) related to cultures and
their differing visual perceptions of, and acuity for, items when agents from multiple cultures scanned an environment for certain semantically meaningful items.

Henle (1972) suggested that language is a system for symbolic organization, so where differences in vocabulary exist, the differences are correlated with differences in environments. Things with meaning in an environment, Henle argued, would have names and those names were therefore indicative of meaning. This meaning is environmentally specific. Relatedly, some cultures speak of time as a substance to be saved or cut, he observed, thus indicating and imparting or perpetuating a particular view of the nature of time. Further Henle suggested, languages, at least full ones, could be used to describe all kinds of things but some descriptions may be longer and more laborious if the concept/item isn’t native to the culture; complementing Whorf’s argument that languages change to fit common usage.

The notion of the existence of a full and contemporary linguistic system within a culture would mean that a child only achieved an adequate concept within the culture when the child develops a standard use of a concept that matches the ones shared by most adult members of a given culture. This also means that kids could develop non-standard concepts and that those non-canonical concepts would impair their larger involvement, acceptance, and participation in the group. Shared concepts within a group are the meanings expressed in the common language Henle posited. Thus learning language could be seen as the acquisition of the concepts of a culture, concepts that are imbued with the experiences of others as well as oneself. This
concurs with Slobin’s (1991) contention that because people learn to think for speaking, speakers of different languages can be shown to speak differently about the same image, indicating that language acquisition could affect the human cognitive experience by shifting an individual’s orientation in terms of perception of the world. Slobin cautiously hedged this point in his own assessment by saying that he was only making that claim regarding thinking for speaking. However, it seems cumulatively that literature suggests that individuals and cultures gain and employ language based on its utility within a cultural environment; and, the lack of utility can greatly impair the learning of certain non-native concepts, an idea seemingly in agreement with some of the work of Bruner (1951).

Complementary to Henle’s work was that of Halliday (1976), who wrote that language acquisition was the acquisition of social functions of language and the meaning associated with them. This was also echoed by Gleason (1988) who wrote that in acquiring language, children also learn the social systems embodied in that language and cautioned that language production can sometimes also belie reality as in instances when people echo social standards but fail to follow them (perhaps more conventionally described in the expression *do as I say, not as I do*). This sort of empty speech is potentially similar to Cromer’s (1988) observation that some children may be highly verbal but not actually say anything of substance and certainly not express or fully grasp abstract ideas. This was dubbed *cocktail party syndrome*. 
Brown (1986) argued that because first language learning is the acquisition of social cognition and culture, the functional attributes of language are more important than the structural semantic ones. Words can be said, that while semantically correct, the usage may not be functionally correct, thus representing a lack of functional understanding. Similarly, Brown wrote (1958) that two people may have an image of a triangle in their minds and despite that fact that both images are structurally different each can be said to be valid. Thus, Brown’s work seems to be in agreement with Henle (1972) who argued that to know an individual speaker's thoughts, feelings, and perceptions, observing their whole speech, in contrast to solely linguistic structures, was important. Brown’s (1986) assessment of language also suggested that language was a cultural possession stored by its members. The same reading can invoke different figures for different people and written figures are representational, Brown noted. Indeed, cultures can have different interpretation of symbols, while language can perpetuate and maintain a culture or individual’s thinking. Over time, habitually used concepts, he suggested, would be shortened in language increasing their efficiency of use. Thus automobile becomes car, in this way he argued language could be seen as all of the ideas, interests, and occupations that take up the attention of the culture. As language changes, the surface forms of language may reflect developments or changes in cultural experiences or values.
Language and Cultural Outgroups

While this study seeks to measure the language function of a sample of alternative school students, because these students have been suggested to be marginalized; their cultural linguistic experience and acquisition with regard to the larger overall majority language and culture may bear some similarities to other marginalized student groups. With regard to race, recent research by Arcidiacono, Beauchamp, Hull, and Sanders (2015) points to a potential linguistic source for differences between black students and white students recorded in some success metrics. Rashid (2009) suggested that racial disparities may be contributed to by failure to provide adequate and meaningful literacy instruction to black children which is in keeping with Jones’ argument that that practices within the education system itself can create linguistic outgroups (Jones, P. E., 2013).

Other arguments have also been made regarding the origins of the findings of non-standard language development among outgroup individuals. Among these is the suggestion that there’s a form of linguistic exclusion or segregation that may come into play whereby outgroups or individuals may experience social isolation, not necessarily of their own choosing, resulting in deprivation of opportunity to acquire majority group linguistics (Wolfram, Hazen, & Tamburro, 1997). In US schools such segregationist practices have been found to occur in areas where courts have eased off on formalized racial desegregation plans (Reardon, Grewel, Kalogrides, & Greenberg, 2012). That increase racial segregation, or re-segregation, has in turn been shown to
grow the racial achievement gap (Condron, Tope, Steidl, & Freeman, 2013).

Relatedly, suggestions have also been made that by gaining and utilizing outgroup dialects, outgroup members may be engaging in a sort of linguistic-guerilla warfare (Fordham, 1999).

With regard to socio-economic class, Coleman (1988) found that words may lead to different images for different people and can also influence the possibilities that people see for themselves and for each other. Lower status people, Coleman wrote, are more easily influenced by language and communication than higher status people who may control the language and decide which styles are spoken and valued socially. This is in keeping with Ryan’s (1977) observation that class differences in language exist and Halliday’s (1982) observation that language can reflect inequality and power structures.

Unfortunately, it may also be argued that linguistic outgroups, by virtue of being linguistic outgroups, may be likely to be deprived of some of the very rhetorical tools needed for them to most successfully organize and argue for their own greater access to and participation in the broader majority culture (though that shouldn’t be read to excuse the majority cultures role in creating or perpetuating outgroups). To wit, Martin Luther King Jr’s Letter from a Birmingham jail has been suggested to have used advanced linguistic semiotic devices to try to turn the hearts of majority-group readers (Tiefenbrun,1992). This is in keeping with Johnstone’s (1989) suggestion that linguistic persuasive styles may in fact be viewed as a facet of culture,
thus to successfully argue for a cause one may be benefited by first acquiring the functional majority-group language needed to communicate the reasoning and importance of one’s cause.

Ultimately, the experiences of students in this study may in some ways show similarities to the situations of others who have been segregated from the mainstream culture and its associated educational opportunities. That other outgroups have been found via varying methods to have linguistic differences, that may contribute to their marginalization and lack of conventional academic success, added further literature support for the major hypothesis of this study; students in this study would show differences in functional language acquisition when compared to what would be expected for typically developing young people of their ages. Such linguistic differences, however, may not be fully revealed by traditional language assessments which often only assesses language structures; instead if thinking and language are intertwined then their language function has to be assessed. (Arwood, 2011; Lenneberg, 1970).

**Linguists on Language and its Evaluation**

Lenneberg (1973) concluded that language was synergistic and thus the whole of language was greater than the sum of the parts. This idea actually was posed much earlier by C.S. Peirce and called pragmaticism, the whole is greater than the parts (1892). Additionally, Lenneberg came to argue that behavior was more than just the input of stimuli to the brain and some reaction to that stimuli. He suggested that
behavior was based on the individual human. Where one was assessed to have problems with language behavior, like speech production for instance, one may well also experience problems in the brain based on the synergistic nature of language. This roughly aligns with Brown’s (1973) suggestion that schizophrenia could be viewed potentially as intrusions of language or inability to filter out the irrelevant and Brown’s earlier (1958) observations that noted that those with cognitive impairments may tend towards less abstract thought.

Likewise, Lucas (1980) identified these impairments as semantic and pragmatic disorders concomitant with cognitive differences. Brown (1958) also observed that children who had not yet developed a complete functional language operated in a more concrete fashion rather than abstractly. Later, Brown, joined by Frasier and Bellugi (Frasier, Bellugi, & Brown, 1963), suggested that such limited language development could impair cognitively driven interaction. Similarly, Marshall (1977) argued that functional language problems may be used to reveal underlying brain impairments, even when an individual could still produce certain linguistic products that were based on language structure (counting, ABC’s, etc.). So, collectively the literature suggests great potential for the utility of assessment of language function. Figure 2.1 shows this researcher’s understanding of the relationship between thinking, cognition, and social behavior.

Difficulties however exist in such linguistic assessment. As Brookes and Hudson (1982) pointed out, there’s potential for poor performance by children in
threatening or formal situations. An additional complication to assessing language in educational settings is the fact that teachers may use words with abstract meanings; but, students may receive them concretely (Perera, 1982), if they understand them at all. Similarly, forms of instruction used with adults and kids may differ so youth may not understand what’s asked of them. In some instances such failure by children to understand the specific linguistic forms used with them can be misinterpreted as insolence rather than as the limitation of language acquisition that their misinterpretation shows. Meanwhile, written work may not help in evaluation since written language is often more formal than spoken language and lacks greater contextual clues (Perera, 1982). Additionally, Lenneberg (1970) observed that there were some fundamental misunderstandings in conventional educational practices for evaluating language including rewarding students for producing structural-sound imitations, a process that he noted fails to support actual language acquisition.

Relationally, Brown, Frasier, and Bellugi (1963) among others (Arwood, 2011) have cautioned that an individual’s production of language isn’t necessarily evidence of knowing; it may just be imitation (see *cocktail party syndrome* above for an example related to this idea). Perhaps to help workaround such limitations in some forms of language evaluation, Brown (1970) suggested the use of pictures to investigate differences between individuals. Such practice also draws support from Wendt (1956) who described how individuals bring their own semantic meaning to a picture.
Figure 2.1 Neurotypical acquisition of language function compared to neuroatypical function for moral behavior

Figure 2.1 illustrates the researcher’s proposed mechanism for development of conventional morality. This figure illustrates the researcher’s proposed mechanisms for individual acquisition and demonstration of conventionally moral cognition and behavior compared to a limited acquisition of conventionally moral cognition and behavior. Limitations in either cognition or perception as well as limitations in conventional functional language acquisition opportunities provided to an individual within a culture are theorized by the researcher to impede conventional demonstration of moral development affecting social behavioral conventions.
Literature reviewed from brain studies, cognitive psych research, and language as summarized in Figure 2.2.

**Cognitive Psychology** – Perception of agents and objects as well as social contexts varies among individuals particularly for those in different cultures but can be conceptually acquired when individuals from varying cultures acquire each other’s language.

**Language** – Language is not acquired through externally rewarded repetition but rather through ongoing assignment of meaning and refinement. Representing language acquisition reflects what is meaningful and salient to an individual within a culture. Increased language acquisition can allow new thinking.

**Neuroscience** – The brain works synergistically and language networks interact with the whole brain including visual and motor systems that drive perception and facilitate learning and action. This synergy underlies the acquisition of thinking and language learning.

*Figure 2.2* Summarizes the factors from three different disciplines; Language, neuroscience, and cognitive psychology that underlie moral development. Current remediation theories for limited pro-social moral development as were discussed in the
review of literature, including those practices used in alternative schools, do not address the findings from these fields individually nor en masse. The above diagram is consistent with the Neuro-Semantic Language Learning Theory, a relatively new theory of learning discussed in the review of literature.

Table 2.2

A summary of interventions for when social behavior doesn’t match convention

<table>
<thead>
<tr>
<th>Model</th>
<th>Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviorist model</td>
<td>1. Behavior fails to match social behavioral convention</td>
</tr>
<tr>
<td></td>
<td>2. Make behavior match convention through punishment or reward</td>
</tr>
<tr>
<td></td>
<td>3. Behavior now matches convention, if not repeat step 2 to reinforce</td>
</tr>
<tr>
<td></td>
<td>until true or confine/segregate to limit the impact of problem behavior</td>
</tr>
<tr>
<td>Ecological model</td>
<td>1. Behavior fails to match social behavioral convention</td>
</tr>
<tr>
<td></td>
<td>2. Change (or eliminate) convention</td>
</tr>
<tr>
<td></td>
<td>3. Behavior now matches (new) convention</td>
</tr>
<tr>
<td>Psychodynamic model</td>
<td>1. Behavior fails to match convention</td>
</tr>
<tr>
<td></td>
<td>2. Provide care for emotional and physical wellbeing</td>
</tr>
<tr>
<td></td>
<td>3. Behavior now matches convention, if not repeat step 2 until true</td>
</tr>
<tr>
<td>NLLT model</td>
<td>1. Behavior fails to match convention</td>
</tr>
<tr>
<td></td>
<td>2. Behavior represents thinking and language which can be acquired;</td>
</tr>
<tr>
<td></td>
<td>so change thinking through opportunities to acquire new language; so</td>
</tr>
<tr>
<td></td>
<td>that an individual’s conventional behavior matches convention</td>
</tr>
<tr>
<td></td>
<td>3. Behavior now matches convention, continue to provide more</td>
</tr>
<tr>
<td></td>
<td>language acquisition for greater cognition</td>
</tr>
</tbody>
</table>

Table 2.2 shows a summarized three step process for various learning models presently employed by schools for the remediation of behavior not matching conventional pro-social expectations for conduct in schools. Readers should be
cautioned that the review of literature contained in this document observed that there are reports that the presence or introduction of rewards to an environment as is suggested by the behaviorist model (which includes PBIS) can inadvertently or explicitly promote anti-social competition and aggression. Further the first three models in the chart may not prepare an individual with the necessary cognitive function to succeed across a variety of settings. Readers should additionally note that the NLLT model’s current use is limited but the researcher believes it provides the best hope for contributing to the pro-social moral advancement of young people who exhibit problematic unconventional behavior in school settings and elsewhere.

**Methods in Functional Language Assessment**

**Introduction to Functional Language Assessment**

Some structuralists define language function as surface forms based on intentions the listener’s perception of the speaker’s intention such as narratives, persuasive language, etc. but such assessment of superficial qualities can fall short of sufficiently examining language (Cromer, 1988). Hare (1999) suggested that examination of words alone was insufficient and that it’s how an individual constructs ideas and arguments and how those arguments or ideas are used to relate ideas to the listener that is important. For the purpose of this study and because the language literature emphasizes the meaning of language underlying surface forms, language function refers to the thinking that is deep semantic acquisition of meaning, that results in changing the surface forms to show or represent higher depth in
conceptualization. Assessment of functional language has been used to identify information for learning and cognition. Functional language assessment has also been used to guide strategies used to increase learning via language acquisition (Arwood, 2011).

Functional language assessment, though, is far more than simply listening to the words used by a subject. It involves the selection of materials and prompts necessary to assess an individual’s level of social and cognitive linguistic function. This includes paying attention to the format used for assessment, visual or auditory, and additionally, the language level required to understand the social, cognitive, and language levels of visual materials provided to a subject during assessment. Further, the researcher needs to be cautious not to confuse borrowed language, that is language which has been repeated from another source, with the spontaneously developed language of an individual which reveals true language function (Lenneberg, 1970). That difference is important because for language to be representative or revealing about an individual’s cognition it requires that the assessment examines the individual’s own language, not copied phrases.

The practice of language assessment via language sampling, broadly, has been supported by a number of authors. Hadley (1998) argued that language sampling was an important and valid tool for identifying vulnerabilities not necessarily revealed by standardized language tests, especially when language sampling used unplanned narrative and/or expository sampling; that is, sampling that the child had not had
opportunity to rehearse. Research by Bornstein, Painter, and Park (2002) found that simply recording standard interactions a child had, didn’t produce optimal language samples seems to concur with Hadley’s argument about optimizing language sample collection procedures. The collection of samples, however, is simply one component of language sampling. Samples must also be transcribed and analyzed. In an article advocating the use of language sampling and analysis, Heilmann (2010) suggested that even where discrepancies in transcription of language samples existed between examiners, those variations were consistently subtle, having only modest impact on analysis, and could be mitigated through prudent and careful recording and transcription practices. Though recent literature suggests there are not universal guidelines for reporting language sampling methodologies (Finestack, Payesteh, Disher, & Julien, 2014).

The Language of Pictures

Some language sampling methodologies employ pictures. Pictures, when combined with language samples based on those pictures (as were used in this study) provide an opportunity to gain insight into a viewer’s linguistic and social cognition. This is because in perceiving a picture, the viewer is required to bring his or her own cognitive perceptions to that picture (Arwood, Kaultiz, & Brown, 2009; Wendt, 1956). In the extremes, this means that an individual, without many acquired concepts and language, may not see the picture at all, or will see a very unconventional view of the image. Such a perception isn’t invalid, because perceptions belong to the perceiver.
However, such limited perception does reflect a lack of acquisition of social
convention as might be the case among those who regularly demonstrate behavior that
grossly fails to meet social conventions like the students selected for the Core Group
of this study. Such arguments are well supported by literature from cognitive
psychologists regarding the function of language and perceptions as cited earlier in
this chapter.

Just as the story or vision one creates around a picture can reveal functional
language acquisition or acquisition of concepts, so too can it reveal if those concepts
are pro-social or anti-social. Those with anti-social conceptions are likely to apply
those anti-social conceptions to the actions of others (Arwood, 2011; Baumeister,
1997). Thus, in perceiving a set of actions among agents in a picture, the group of
agents in the picture may be assigned anti-social motivations or described as acting in
anti-social ways. Such assignment of anti-social meaning may occur even though the
agents in the picture may have equally potentially available pro-social motivations and
interactions if one has acquired the concepts and language to perceive them.

Pictures themselves, in addition to allowing for assessment of linguistic and
social perceptions, also allow for an individual to be generally assessed at one of
multiple cognitive levels (Arwood, 2011). Generally, most individuals can employ
functional language which can be analyzed to reveal their cognition to be at a pre-
operational, concrete, or formal level. Though individuals can also operate at varying
levels depending on the task or subject at hand. Many moral requirements, like not
“stealing” for example, represent formal rules for society that require advanced language acquisition (Arwood, 2011). Such is similarly the case for concepts like “responsibility” and “punctuality,” social conventions that may be required in schools but operate at a language level that is in advance of the linguistic acquisition of many students. The language level within pictures provided impacts their understanding of picture, if they even perceive any potential story at all (Wendt, 1956). In many instances the stories told by individuals based on pictures they view may also be cartooned or written out by those individuals to clarify or better communicate their thinking about the story or stories they create.

**Cartooning and Cognition**

Cartooning is one of the techniques used by Arwood and others (Arwood, 2011) to investigate the cognition of individuals as well as raise cognition. While individuals may be able to verbally copy or echo words, phrases, and quote social conventions, when asked to draw out the relationships between actors in a picture such drawings may reveal gaps in understanding (Arwood, 2011). Where cartooning reveals such gaps it can also provide a vehicle for raising cognition and understanding as it accesses the visual thinking system that most learners use and also allows for the overlap of multiple visual images to create context and understanding. In essence it adds information either for the researcher or the study participant. Sometimes cartooning can help to communicate concepts and ideas a participant may lack language for (Van Sommers, 1984); or, such cartooning can reveal discrepancies
between the language verbalized, which may be borrowed but not have conceptual meaning to the individual, and the concepts an individual truly understands. A problem for investigation of moral development that was perhaps most recently epitomized by Selfe’s (2013) revelation that children readily violated moral pro-social conventions even though they could espouse them. Use of pictures and cartooning for language sampling are not the only available methodologies for functional language assessment however.

**Auditory Assessment and English Linguistic Culture**

Another type of assessment for the acquisition of functional language centers on the use of questions that take advantage of advanced linguistic function. Such assessments provide no visual referent (Arwood, 1991). Because English is an auditory, rather than a contextual, field sensitive language, its conventions contain time based elements which can impact the structure of cultural and academic expectations (Arwood, 2011). However, because time is an auditory principle that takes advantage of the auditory system, where sound processing occurs over time (Baars & Gage, 2010), non-auditory thinkers, who make up the vast majority of today’s learners (Zeman, Dewar, & Della Sala, 2015), may struggle to use time concepts. Thus a researcher, like this one, could use a verbal question regarding time to test for an individual’s linguistic acquisition. Where a subject’s responses didn’t demonstrate the ability to provide a linguistically appropriate response, one that showed maximal acquisition of language, one might expect to see a related lack of
acquisition of social convention (Arwood, 1991), which could then lead to failure to adhere to social convention, which might be assessed as immorality. Such a supposition is further supported by Arwood’s (2011) argument that mores themselves are formal or abstract level concepts which represent the highest level of language acquisition.

One tool available for the assessment of such problems in using auditory conventions is the TEMPRO (Arwood & Beggs, 1992). This tool provides a method of going beyond surface language structures to examine the functional language acquisition of learners, including those who may not have otherwise shown indicators of linguistic impairment. The tool is intended for those over the age of 8, an age that each subject in this study is many years past. The TEMPRO tool has been analyzed for reliability and found to be highly reliable (Arood & Beggs, 1992) and that analysis also suggests that it can reveal stark differences between those speakers who are able to form temporal propositions indicative of auditory metacognition and those who do not. Further, membership in the latter group has been linked to attitude and behavior problems, something the participants in this study have also been suggested to demonstrate.

Temporal problems indicated by TEMPRO analysis stem from the auditory nature of the English language combined with an individual’s potential lack of ability to organize auditory language with the visual thinking system used by most learners, resulting in suboptimal or restricted use of language for thinking (Arwood, 2011). The
inability to use time concepts effectively may limit one’s ability to think at levels beyond the pre-operational level and can limit an individual’s ability to be pro-social as they cannot link, temporally, semantic prepositions to effectively consider the needs and wants of others. For example, Arwood (2011) describes individuals who lack linguistic development as not being able to effectively understand the common social convention of not stealing. This lack of understanding is present despite the individual’s being able to utter the convention about stealing being wrong, as the individual lacking temporal language has only the ability to conceive of themselves in the present. Such pre-operational thinking, Arwood (2011) notes, means that an individual who doesn’t see an item in someone else’s possession cannot, by their own understanding of the concept, steal it as it is not at that active moment someone else’s possession. Thus, Arwood’s argument that it is only with the acquisition of at least concrete levels of functional language that one can develop pro-social or conventionally moral behavior (her argument is potentially much broader and encompasses more examples but for the sake of demonstration the prior example provided should suffice). Multiple other authors have also suggested that a link between unconventional application of rules or unconventional linguistic constructs can reveal significant differences in one’s construction of reality and potentially impact behavior including Hare (1999) and Baumeister (1997).

If a functional language deficit or the impairment of acquisition of pro-social concepts was to be shown among at-risk youth, and particularly among those who are
reported to at least semi-regularly demonstrate anti-social behavior in school, it may be that remediation based on functional language acquisition could be implemented to better assist those individuals in developing pro-social concepts leading to more conventionally moral behavior. To that end, the following research questions for this study have been developed:

1. What gaps, if any, exist between typical language development and the language development of the participants of the study as measured by a functional language sampling assessment?

2. Given a picture of a social event with shared activities, will the participants make pro-social or antisocial connections among the agents?

3. When cartooning to visually represent a participant’s understanding of possible moral transgressions, does the participant’s drawing and writing show a social, cognitive, and/or a language gap between what the participant draws and writes and what the participant tells about the concepts?

4. Will participants show a difference in language function when the task requires higher and/or lower levels of cognition?
Chapter 3: Methods

Research Questions

This study sought to answer the research questions found below.

1. What gaps, if any, exist between typical language development and the language development of the participants of the study as measured by a functional language sampling assessment?

2. Given a picture of a social event with shared activities, will the participants make pro-social or antisocial connections among the agents?

3. When cartooning to visually represent a participant’s understanding of possible moral transgressions, does the participant’s drawing and writing show a social, cognitive, and/or a language gap between what the participant draws and writes and what the participant tells about the concepts?

4. Will participants show a difference in language function when the task requires higher and/or lower levels of cognition?

Introduction

There is some reason to believe, according to this researcher’s review of literature, that youth in alternative education settings and particularly behaviorally-challenged youth in such settings may demonstrate a deficit in functional language acquisition, specifically in conceptual depth of one’s own thinking in relationship to behavioral choices and their impact on others. If such conceptual thinking shows
deficits, then such lack of thinking about others may explain these students’ failure to adopt the pro-social conventions of the surrounding educational culture. Similarly, prior acquisition of anti-social concepts may pre-dispose some alternative school youth to exhibit anti-social cognition and behavior. Since many alternative school students come from homes or environments where anti-social concepts may be prevalent, and since concepts are acquired by how others assign meaning, many of these students may already have developed anti-social thinking. Therefore, this study also examined these students’ use of social concepts to see if they think pro or anti-socially about others and if they use pro-social or anti-social ways to problem solve. Furthermore, the level of these concepts was also analyzed to determine the level, or levels, of functional language acquisition of each individual. Additionally, these methods allowed the researcher to analyze the complete collection of language samples from each participant to determine each participant’s general level of language function. Such an investigation of the functional language acquisition and the acquisition of pro-social or anti-social concepts among such youth was determined to be both warranted and of potential benefit to the fields of education and moral development.

This chapter will provide the research design and methodology of the study. The methods and design have been specifically chosen to investigate functional language acquisition among a purposive sample of behaviorally challenged students attending an alternative school as well as a selection of their higher achieving peers
from within the same school. Overall, this study may be viewed as a descriptive qualitative study.

**Setting**

The alternative school program which participants in this study attend is located in the Northwestern part of the US. It reflects a ‘traditional’ alternative school environment as described by Deal and Nolan (1978) or the type 1 school as described by Aron (2006). As such students at schools of this type attend a variety of classes (on-campus) with instruction developed to target state and national standards in the hopes that students will eventually graduate from the school and thereby earn a standard high school diploma (as opposed to a certificate of completion or general equivalency degree). The school website suggests that the school prides itself on a relationship based approach and typically serves learners who have fallen behind academically or socially or who have otherwise failed to meet the standards for participation in mainstream schools. As with many alternative schools (Tobin & Sprague, 2000) the option to attend the school in question is generally only provided after students have indicated failure to thrive in standard contemporary educational settings. Though average class size is almost always significantly higher than 12 students per class, a statistic cited in Ruzzi and Kraemer (2006) for a now defunct program in the same region (which when it existed had also been hailed as a model alternative school), the class size at the school used for this study is 18-20 pupils,
which is still lower than the class sizes of many comprehensive mainstream schools in the area.

As may be standard educational practice this school provides students with a handbook containing both guiding principles as well as instructional guidelines for students. The students selected for this study have at least sometimes failed to adhere to these guidelines. The school’s primary (or community) expectations of students are listed below:

- Bring your best self
- Participate 100 %
- Take responsibility
- Listen and hear one another
- Make healthy choices
- Arrive prepared
- Act with integrity
- Persevere

Additional sections of the school’s handbook suggest the following are specifically expected (or prohibited) of students:

- Refraining at all times from using violent language or gestures that are intimidating, hostile, or threatening.
• Celebration or promotion of illicit drug or alcohol activities with conversation, clothing, accessories, or student materials [later sections prohibit the use or possession of said substances].
• Refusal to surrender cell phone after being asked by [a] teacher.
• Refusal to leave the room when asked by [a] teacher.

These expectations are suggested to be reflective of the school’s view of what is necessary for success within the program. To that end the school handbook (p. 6) suggests that the school,

...is committed to creating a safe, productive, and growth-oriented learning community where students can learn and achieve high academic standards. Maintaining a positive attitude, striving for your best, learning from your mistakes, and taking responsibility for your actions is key to success for all students and staff at [the school]. Students participating in the program are expected to understand and embrace the Community Expectations [see first set of bullet points above] that are put in place to keep every member of the community safe, happy, and healthy. In order to support students’ successful participation in [the school]’s educational program and offerings, [the school] has created a comprehensive system of student behavioral supports designed to 1) establish clear behavioral expectations that are known and understood by all students, 2) spell out
clear consequences and expectations about responsibility and accountability when behavioral standards have been broken, and 3) describe the tiers of intervention and individualized supports that the school puts in place in order to help students learn from their mistakes, grow, and remain successful in the community. The [school] staff is committed to promoting the success of all students in the community.

The alternative school is said by school leaders to be well regarded in the local educational community, which is itself well regarded (Aron, 2006), and meets several criteria for alternative school best practices. In accordance with a variety of theories about learning, the school includes some care for psychodynamic needs providing food and minor first aid supplies to all students daily as well as having provisions for clothing. Students are also able to access counseling services on site more or less as they desire. Further, the school is in the third year of implementing a school-wide positive behavior interventions and supports (PBIS) program modeled on the PBIS programming framework of Sugai and Horner (2002) and has been suggested by school leaders to have implemented that framework with a high degree of fidelity including regular staff training and prescribed check-in/check-out procedures for higher tier students. Students are assigned to tiers based on their meeting of the school’s academic and behavioral expectations as indicated by attendance, credit accumulation, and office referrals. Based on 2015-2016 school year data, approximately 80-85% of the students attending the school are on Tier 1 warranting no
additional interventions. Based on that same data approximately 10% of the students qualify for Tier 2 placement and interventions and the remaining 5% qualify for Tier 3 placement and interventions. The school itself serves approximately 150 students at any given time.

Students at the school who qualify are also provided special education services, though none of the students included in the Core Group selected for this research have been found to qualify for those services. Additionally, each student is also provided an advisor and regular family contact is encouraged. Further students and their families are provided with copies of the school’s handbook (including a code of conduct and behavioral expectations) prior to enrollment as well as generally being required to attend an informational presentation about that handbook prior to attending. The school is majority-white as is the teaching and administrative staff of the school.

**Participants**

Prior to collection of data from the students included in the study the researcher completed a pilot study using a volunteer to ensure the researcher’s own familiarity with the study methodology and to ensure smooth operation of the technology to be used. The volunteer for the pilot study was a 25 year old female native English speaker with some college background. Results from the pilot suggested that the procedures were sufficient to yield the data necessary for this study.
The use of the study methods with the below described study participants was reviewed and approved by the Institutional Review Board and review of the study and study methodology, the board approved this study under exemptions provided by Subpart A, 46.101 of the Common Rule which exempts many studies by teachers in educational settings. The study methodology and inquiries asked no more of the students involved in the study than might normally be asked of them in a typical day. Further, while the procedures and exact prompts used are unique to the language sampling methodology, students regularly share their perceptions of social events as well as discuss their days with the researcher; albeit, never before for language sampling and analysis thereof. Additionally, students also occasionally are asked to create cartoons of their ideas as part of curriculum currently used by teachers at the school. The scheduling of the language sampling was done in such a manner as to be convenient to the students participating and did not deprive them of educational opportunities. The school schedule already provided opportunity for similar meetings between teachers and students as was required to accomplish collection of the language samples. Students were asked to voluntarily participate in the study and identifying information withheld beyond what has been provided already in this chapter. Any names appearing in transcriptions that might identify students or staff or the institution itself were changed.

Participants for the study were chosen based on their relative success or failure within the alternative school. This selection was designed to assess the researcher’s
theory that the acquisition of pro-social concepts guides the moral development of individuals within the dominant US culture; and, students marginalized from that culture and assigned to alternative school may not reflect the language development and associated pro-social concepts of the larger culture. To provide a range of students from within the alternative school students were selected to form two primary study groups and to provide a confirmation case. One group was comprised of the most behaviorally challenged students, the other group was comprised of the most academically and behaviorally successful students at the school. This sampling strategy was intended to provide a Core Group of the most behaviorally challenged students over the duration of the prior year as well as to provide data for comparison purposes from a group of more successful students also attending the alternative school. Further, the sampling strategy was also intended to permit tentative confirmation of any patterns or themes.

Four students were selected as the Core Group of the study based on their prominence among their peers in terms of the number of referrals. These four students received the highest number of referrals in the school for disruption and defiance during the 2014-2015 school year. No other students were so consistently referred to the alternative school administration for disciplinary reasons during that school year.

For comparison, a second group of students, the Comparison Group, was also selected. These students were selected based on their having been the only students currently enrolled at the school to have been on the school’s honor roll for each
quarter for which the school kept records of such during the 2014-2015 school year. Further, none of them had received any disciplinary office referrals for disruption or disobedience during that year.

A final student, one whom met similar criteria to the Core Group was selected as well for further confirmation of any findings related to differences or similarities between the Core and Comparison Groups. None of the students selected for the Core Group have individualized education plans (IEPs), 504 plans, or are considered English Language Learners by the school or by the students’ originating school district. Additionally, each student in the Core Group self-identifies as white. The records of the members of the Comparison Group and the Confirmation Case were not similarly reviewed for racial demographics, IEPs, or 504s as the researcher felt such were not pertinent with regard to their selection for participation in the study. However, like the members of the Core Group, the students in the Comparison Group and the Confirmation Case all are identified as native English speakers.

While this sample is purposive, it is also one of convenience to the researcher as he works at the school that the students attend and as such it may be of importance to note the argument from Merriam (2009) which cautions that selections made on the basis of convenience alone may be questionable. However, this researcher believed that the merits for functional language analysis of having a sample from students with whom the evaluator has relatively good-natured relationship, as well as the role of the
school the students are being selected from, warranted whatever risk there may have been to data collection.

Finally, some reviewers may question the researcher’s lack of inclusion of standardized testing data for the study participants. Based on prior reviews of such data by the researcher related to other academic projects and further based on reports the researcher has received from staff at the school more closely involved in testing, the researcher was concerned that the research site in question may have ongoing issues with universal and complete adherence to testing protocols. As such the researcher opted to use a combination of grades, referral data, and teacher testimonials in selecting and providing commentary regarding the most successful students rather than relying on standardized testing data.

**The Core Group**

The Core Group of students (four) selected as participants were selected for the significant level of aberrance or lack of adherence to academic social conventions that their behavior, at least semi-regularly, displays. Each of the students selected for the Core Group of this purposive sample has been classified as higher-tier (2nd and 3rd tier), essentially providing an indicator of heightened concern for dramatically aberrant behavior, by school data and staff observation. The student selected as the Confirmation Case also rated as higher-tier (3rd tier).

Although these four students represent just 2.6% (4/150) of the total student body, Core Group participants were responsible cumulatively for 30.9% (25/81) of
the total referrals for disruption in the school, as well as 30.3% (23/76) of the total referrals for defiance during the 2014-2015 school year. Referral totals for each student are shown in Table 3.1.

Table 3.1

*Referral Data for Core Group Study Participants During the 2014-2015 School Year*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Age*</th>
<th>Disruption referrals</th>
<th>Defiance referrals</th>
<th>Total referrals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>M</td>
<td>17</td>
<td>9</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>Student 2</td>
<td>M</td>
<td>18</td>
<td>7</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>Student 3</td>
<td>F</td>
<td>17</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Student 4</td>
<td>M</td>
<td>14</td>
<td>5</td>
<td>7</td>
<td>12</td>
</tr>
</tbody>
</table>

Note. *Age as of the language sample collection date

Age in Table 3.1 refers to the age of the students in years at the time of data collection. Additionally, students 1-3 above were listed in the school disciplinary data as having an above average number of reported incidences of skipping class (student 4 is part of a smaller cohort whose heightened supervision level tends to greatly impede skipping). Those same students (1-3) were on behavioral probation for multiple quarters of the 2014-2015 school year. The school has effectively done away with behavioral probation for students of Student 4’s age-cohort. All of the students (1-4) have been enrolled at the school for a year or more and thus have been availed of the
various behavior improvement supports offered (and sometimes required) by the school. The Core Group students, identified in school data as the most difficult students who continue to be enrolled at the school, provide the researcher with potentially the most extreme sample (as judged by disciplinary referrals) to which the researcher has convenient access for study.

Student 1 received referrals for cursing, cursing at teachers, being at school while under the influence, cell phone use during class, being off-task during class, being argumentative and leaving the room during class, possibly destroying school property by punching or kicking a wall, mocking other students, and dress code violations. One incident has him reportedly shouting across the room, “F… you in your f…ing mouth,” which he later is reported to have explained was directed at no one individual in particular. Another office referral describes that upon late arrival to class he interrupted instruction by talking to friends and then proclaimed, “What an awkward-ass class.” Then when asked to take his seat and stop talking he began yelling that he hadn’t done anything. After this he reportedly stormed out and damaged a wall. Two other referrals include the student self-disclosing to office staff that he believed he was too high (on drugs) to be at school.

Student 2 received referrals for drug use, cursing at teachers, leaving the classroom without permission, not leaving the classroom when asked to, skateboarding in class, marking other students with a stamp during instructional time, popping a balloon during class, and using his cell phone during class. Among these
reports, one has him discovering he’s lost his vaporizer (the referral is unclear if this is a device for marijuana, tobacco, or both) and declaring to the teacher that he’s going to go find it, then yelling at the teacher that there was nothing the teacher can do about his leaving class to look for it. Another referral has him cursing at a teacher during a dodgeball class when he’s told to not cheat. Comments in multiple reports suggest a pattern of talking and otherwise being off-task, then being argumentative when confronted about such.

Student 3 received referrals for cell phone use during class, being high, arriving late to class, being argumentative, dress code violations, throwing food, distracting class, passing a shot glass to classmates during instruction, as well as swearing at teachers. Among these, one report finds her taking selfies during class and then when asked to turn the phone in to the teacher, the student demanded that the teacher charge the phone for her. The teacher replied that she’d be getting a referral for her actions regarding the phone to which the student reportedly replied, “Oh trust me, I know.” A different report notes that the student was using her cell phone as well as throwing candy during a quiz and then reportedly told the teacher to, “Get out of [her] face,” when asked to desist from these things. Many of the referrals for Student 3 report her being repeatedly off-task.

Student 4 received referrals for provoking peers, requesting to fight a teacher, throwing a phone at a teacher, throwing a drink, and cursing at a teacher among other things. One reported incident has him talking loudly during instruction and
interrupting the teacher. When asked to speak more quietly, he’s reported to have retorted, “Teacher come here, I want to fight you.” Another referral has him talking, arguing, and leaving his seat during instruction; then being removed from class. According to that referral he later returned to class and then threw a drink. Yet another referral reports Student 4 as having told a teacher to, “Hold on,” while he finished a conversation on his cell phone during class. According to that referral, after he completed his call the teacher reports having taken his phone prompting the student to leave class while berating the teacher for being, “...lame, annoying, and unfair….” A referral for another incident notes he was asked to leave the room following some disturbance, did so, then screamed through the door into the classroom he was asked to leave. Additionally, he received a referral for having thrown his phone at a teacher when they asked him to stop using it for the third time in one class period.

The Comparison Group

In addition to the Core Group, six other study participants have been selected for comparison and confirmation purposes. The Comparison Group, comprised of a similar number of students (five) to the Core Group were the students identified as the most academic and behaviorally successful at the school. These students were selected for sampling in the event that strong performance within the school might be linked to pro-social concept acquisition and heightened levels of functional language acquisition. Students selected for the Comparison Group were five students who
appeared on the honor roll for each quarter during the 2014-2015 school year who were still enrolled at the school. Further, these students were selected for the fact that they had received no disciplinary office referrals for defiance or disruption during that school year. Like the students in the Core Group, they were well known to the researcher. While narrative commentary was readily available for the four students in the Core Group as well as for the Confirmation Case, for the five students who comprised the Comparison Group, the researcher briefly gathered narratives about their scholastic abilities from teachers at the school.

The first student of the comparison group is Student 5, as with the other subjects in the comparison group, Student 5 was on the honor roll for each quarter during which records were kept during the 2014-2015 school year. And during that year, Student 5 received no office referrals for disruption or disobedience. At the time of sampling he was 19 years old. Teachers described him as having a strong motivation to graduate and suggest that his, “brain works well which compensates for his lack of focus.” He was further described as being able to sit in a classroom for long periods of time and as regularly completing his classwork in a timely manner. Additional teacher comments included praise for Student 5’s ability to, “play school well,” his “neat points” contributed to class discussions, and his strong writing skill and creativity.

Student 6 was similarly described as having the ability to sit in a classroom for long periods and complete work in a timely manner. Additionally, teachers praised his
commitment and motivation towards graduation. He’s further described as having a strong memory and retention abilities and is said to be fast in completing his work. Teachers suggest he consistently does the minimum amount necessary to earn his marks, but in doing so he consistently earns good marks. At the time of sampling he was 17 years old.

Student 7 is the only female selected for the comparison group. At the time of sampling she was also 17. Like the other aforementioned Comparison Group members; she, too, was praised as having strong motivation to graduate and for possessing a strong ability to both sit in a classroom and complete work as well as for having the ability to prioritize important tasks. A teacher described her ideas as “cool” and observed that Student 7 frequently not only exceeds the expectations for length in classroom writing assignments but also is known to be a great contributor to class discussions when she’s emotionally able to do so.

Student 8, a male, was 15 at the time of sampling. Teacher commentaries on Student 8’s abilities and reasons for success included the observation that he’s a respectful and hardworking pupil who expresses a strong desire to be the first in his family to graduate from high school. He also received praise for being a positive role model who gets along with everyone and stays clear of “gossip” and “drama.” His classroom focus was described as a point of strength and so too was his commitment and concern for getting good grades; to that end, he reportedly inquires frequently with teachers about his grades and asks about opportunities to improve his writing and
other academic abilities. Teachers also praised Student 8’s ability to balance his playful, humorous, and athletic qualities with times when more serious class participation was appropriate.

Student 9, another male, was similarly praised for his ability to balance his abilities at humor with more conventional classroom expectations of studiousness and work completion. His ability to get along with peers was also highlighted by his teachers. Student 9 was described as someone who shows “higher-level thinking”, and regularly participates in class discussions. Further, he was described as a critical thinker who gets along with everyone and has good self-advocacy skills. Finally, he is suggested to have a “nice” group of friends and supportive family. Student 9 was 14 years old at the time of sampling.

**Confirmation Case.**

In addition to the Core Group who were selected for their extraordinary number of office referrals for disciplinary violations related to classroom disruption and disobedience; and, the Comparison Group composed of high achieving students enrolled at the school, a final student was selected for purposes of further confirmation. This was done to provide either further support or refutation regarding the researcher’s hypothesis of the potential existence of a relationship between language function and moral development as potentially indicated by office referrals. Such referrals were thought by the researcher to possibly be an effective proxy for
gauging lack of acquisition of the pro-social concepts present in the larger educational culture.

The Confirmation Case student, selected to permit confirmation of any significant thematic findings was the student in the school who received the most office referrals for disruption and defiance in the first quarter of the 2015-2016 school year; and, he failed nearly all of his classes during that quarter as well. He was included in the study to provide further evidence confirming or refuting any themes that may have emerged regarding differences in the functional language acquisition between the members of the Core and Comparison Groups.

Student 10, the Confirmation Case, was 16 at the time of language sampling. At the beginning of the 2015-2016 school year, the alternative school selected for this study created a behavior success matrix that provides a rubric with which to judge a student’s success at the school. This success matrix includes five categories that the school has deemed important for gauging student success, included among these is a category for office referrals related to disruption and disobedience in the classroom. Of these five categories by which the school measures student success, Student 10 was the only student in the whole school to score at the lowest rank in each category. Thus, according to the school’s judgment, he was the worst overall performing student at the school and given the breadth of his failure as a student he has been notified that his participation in the school program going forward is predicated on his exhibiting
demonstrable improvement. Further, as the most failing student, he has been availed of every support the school offers though none is designed to target language function.

A sampling of Student 10’s office referrals for the 2015-2016 school year, included referrals for throwing pencils, sleeping in class, eating in class, leaving class without permission, returning to class after being sent out, talking during quiet work time, use of a cell phone during class, and leaving his seat during instruction to hit peers. Additionally, Student 10 received a referral for entering a teacher’s room during the lunch period and then re-arranging the file cabinets while the teacher was away for lunch duty.

**Data Collection via Language Sampling**

Because language sampling for functional language analysis differs from the more common structural language analysis which many readers may be more familiar with, this section provides an extensive overview of the purposes and rationale, materials, transcription methods, and analysis methods.

**Purpose and rationale**

Language analysis, via language sampling, to study perception and language acquisition has been used by a number of contemporary researchers including Holmes (2012) and Arwood (1991; 2011) and has been a component of earlier seminal works (Finestack, Payesteh, Disher, & Julien, 2014). This research design draws support from Bruner (1996) who argued that the organization of experience and knowledge is likely the most naturally organized in narrative form, a format that has been used
specifically by Arwood for investigating functional language acquisition. Further support is drawn from Wendt (1956) who observed that individuals bring their own meaning to an image which may be informed by their own semantic understanding of the picture as well as the agents, objects, and relationships they perceive within it. Bernstein’s work (1971) also used similar methodologies. The use of purposive sampling is suggested by Merriam (2009) to allow a researcher to gain the most information in situations where the researcher wants to discover links or relationships among things (as opposed to when one is investigating the probabilities of those relationships). Additionally, this format is congruent with the fact that non-standard assessments (those that look at factors other than standardized cognitive testing) are advocated for individuals who may have suffered TBI of which high incidence has been seen among delinquent youth (Coelho, Ylvisaker, Turkstra, 2005). Hadley (1998) argued that language sampling was such a task and that it allowed for assessment with potential for greater insight than what might be provided by standardized language tests.

**Materials and Procedures**

Materials were selected to control for language, cognitive, and social levels. In order to provide study participants with the greatest chance of success at the tasks in the study, materials were used that reflected a variety of cognitive levels. Students were first given a verbal prompt which operates at the formal level of cognition. This task essentially assessed their ability to fit in with the larger English auditory culture.
as society and educational institutions would likely expect of people their age. In some cases, the cognitive level of the verbal prompt was lowered to allow students to complete the task. Generally this was done when the students indicated through inquiry that they didn’t understand the question. Those instances were noted and described in Chapter 4. Following the verbal prompt students were asked to tell a story for a picture that they selected from a series of pictures that are pre-operational in nature. These pictures provide the complete setting and context for all of the agents depicted and they are provided within a single horizontal plane in the picture.

After the task at the pre-operational level, the students were also asked to provide language samples via a story-telling exercise utilizing two different pictures that are at the concrete cognitive level. These require the participants to make connections among the agents in the picture whose presence and actions in the picture are not readily provided, nor are the agents in a single plane. Because the pictures require students to make connections among the agents they identify in the picture and allows them the opportunity to utilize their own social development, this task provided an opportunity to assess whether students made anti-social or pro-social connections among agents. To control for interest, students were asked to choose two different pictures from the set of concrete level pictures provided by the researcher. Following their storytelling students were asked to cartoon out one of their stories for the APRICOT II pictures. Providing students the opportunity to cartoon out their stories for the same concrete level pictures gave them the opportunity to show advancements
in the complexity of ideas provided and in the stories the students produced or alternately allowed the researcher to gather more information about whether students could visually represent the concepts they included in their stories which would be potentially indicative of understanding of those concepts.

**Verbal Prompt.** The verbal prompt that uses oral language rather than an image set. This prompt, “What do you on a typical day?” uses two temporal modifiers, *typical* and *day*, creating a level of abstraction which is cognitively accessible only to individuals with sufficient functional language acquisition. This question is part of the TEMPRO analysis tool developed by Arwood and Beggs (1992) to assess language function.

**Pictures for Stories.** The remaining materials used were from the APRICOT I and APRICOT II sets of images. These materials have been specifically selected as they provide support for assessment of a wide range of students. This is important because each picture or verbal prompt can be designed to assess a specific level of cognitive function and as the cognitive level of the pictures increases the participant’s language function may decline. For the APRICOT I and II pictures, study participants were asked to choose a picture and tell a story about the picture. The procedure was modeled for the students, by the researcher, immediately prior to each student telling his/her story. In keeping with what was asked of the study participants, the reviewer told his story about the people present in the picture and their interrelated actions rather than telling a story about himself or simply listing things he saw. This meant
that the content of the reviewer’s story was tied to what could be reasonably understood to be a component of the picture.

The APRICOT I pictures (see example in Appendix A) used for this study are designed for a pre-operational level of cognition. They provide the viewer with an event where all the participants are in the same plane and the relationships among the people, agents, and objects are provided within the here and now of the picture (Arwood, Kaulitz, & Brown, 2009). Because the findings from the review of literature suggested that the participants in this study may have deficits in language function, these pictures, which provide the viewer with each of the aforementioned semantic components, should be easier for the participants to utilize in the language sampling task than the APRICOT II pictures. This is because the APRICOT II pictures (see example also in Appendix A) provide less direct information about the relationships among the people, agents, and objects, thus requiring the participant to bring more of their own functional language to the picture in order to create their stories. The APRICOT I pictures are also designed to contain situations which children being assessed can relate to or identify with, this is important because the pre-operational thinker is self-oriented. Students were given the option of choosing APRICOT I picture #3, “The Kite in the Tree,” APRICOT I picture 12, “Playing Basketball,” or APRICOT I picture #13, “The Barbecue.” These pictures were selected by the researcher to provide students with a range of options to use to develop their stories while considering what the researcher knows about the interests of each study
participant. These pictures were selected to try to provide pictures depicting situations that the participants may readily recognize and be able to bring language that would assist in their understanding of the picture. Prior to telling their story using the APRICOT I picture, participants were told a story by the researcher utilizing APRICOT I picture #25 *Catching the Fish*. The story was not pre-written and read to the participants as to keep the naturalness of the sampling task and instead the story was crafted by the researcher in real time each time it was told. Each time the researcher told his story it was crafted to include the following elements: A father has the day off from work and takes his two sons fishing, one son hooks a large fish and the father holds onto him, the other son gets the net to help catch the fish, the fish is caught successfully and taken home for the family to eat for dinner. Both of the sons were assigned names, the father was referenced as father or dad. The APRICOT I pictures used for this study are reproduced in Appendix A with permission from their copyright holder.

The Apricot II pictures were included in this study to allow for assessment of cognition and language at the concrete level. These pictures are designed with social elements that feature agents, objects, and contextual clues that are on different planes within the picture. These pictures are also designed to involve actions among the agents in the picture that require a learner to understand certain basic semantic relationships as well as societal behavioral conventions or rules. These pictures, when used in conjunction with language assessment, can reveal pro-social or anti-social
concepts and cognition by the examinee as multiple options exist for creating a story from the picture. As with the APRICOT I pictures, participants were asked to choose a picture and tell then a story about what was happening in the picture. The pictures available to the students were APRICOT II picture #9, “The Fall,” APRICOT II picture #12, “Skateboarding Accident,” and APRICOT II picture #21, “At the Beach.”

Just as was done with the images from the APRICOT I image set, the procedure for selecting a picture and telling a story was modeled by the researcher for the students immediately prior to their sampling. For the APRICOT II pictures participants were asked to complete the task twice. Each time they were asked to use a different picture from the APRICOT II set, thus generating two different stories and thereby providing two different language samples.

As with the APRICOT I pictures the APRICOT II pictures offered to students were selected based on the researcher’s knowledge of the individual participants in order to select pictures most likely to depict situations relevant to the participants’ lives. This allowed them to bring more language and social cognition to the pictures.

**Cartooning.** Students were asked to cartoon out their understanding of the actions of the agents in one of the APRICOT II pictures as well via the researcher requesting verbally that they cartoon out one of their APRICOT II stories. Picture selection for cartooning was based on whichever APRICOT II story the student selected to tell second so as to not add challenge or stress potentially derived from a student’s attempting to remember a story from earlier in the sampling procedure.
However, students were permitted to draw out their first APRICOT II story if they chose to, though none did. As with the storytelling procedures, the participants were provided a model of the cartooning product, though to save time the researcher created an example cartoon ahead of time.

The APRICOT II picture that the researcher used for his example story and cartoon was #16 “Fireworks.” As with the APRICOT I stories, the APRICOT II story the researcher told to the students was generated in real time rather than being read from a pre-written script. The APRICOT II story the researcher told to students included the following qualities: It was near the 4th of July, some kids from the neighborhood had retrieved fireworks from one of their homes and were lighting them in one of their driveways, the youth were unsupervised and were using the fireworks in an unsafe manner, there were indicators in the driveway and the garage that led to the idea that an adult had recently been present and would be back shortly, the adult upon their return would tell the youth both that they were being unsafe and that fireworks are only to be used with adult supervision and that the youth should not have been using them without that supervision. Each agent in the picture was given a name, the undepicted adult agent that would return was described as a father or dad of one or more of the depicted children. The APRICOT II pictures used for this study are also depicted in Appendix A with permission from the copyright holder.

Each of the language samples from the above were also recorded and transcribed. This recording and transcription allowed for data analysis to be
performed in accordance with the methods described in the data analysis section of this chapter in order to measure functional language acquisition and participants’ development of pro-social or anti-social concepts. Transcripts of the students’ language samples appear in Appendix B.

**Collection and Transcription**

Language sampling sessions were conducted individually on school grounds in a private but neutral and observable setting. Similarly situated conversations are conducted between staff and students at the school with great regularity. In fact, time is frequently allotted in student schedules for such so students faced no adverse consequences, academic or otherwise, by participating in this study. Further, this study included students who are familiar with the researcher, which may help ameliorate the stranger as interlocutor factor that can impair youth verbal response as described by Brookes and Hudson (1982). Both the students’ relative familiarity with the procedures and their familiarity with the researcher enhance the validity of the data collected.

With the exception of a brief cartooning exercise (the results of which are reproduced in Chapter 4) students’ language samples were provided orally to the researcher and recorded for later transcription and analysis. Heilmann (2010) has observed that while errors in transcription can occur they may be limited by proper technique and are frequently of limited consequence in overall analysis. The recording software used was Smart Voice Recorder for the Android mobile operating
system. The hardware used was a One Plus brand model One smartphone running the Android mobile operating system. Recorded audio files were then transferred to a Lenovo laptop which utilized the Windows 7 operating system and played back for transcription using VLC Player software at both full speed and at 40 percent speed, to allow for greater accuracy. Transcriptions were made to be verbatim to the utterances of study participants and as such often included pauses, repetitions, and uncommon pronunciations or similarly anomalous speech features. In some instances explanations of students’ non-verbal gestures and explanations of instances of students referencing other students known to the researcher were also included in the transcriptions. Transcriptions of the recorded audio were also reviewed and confirmed to be accurate by Jessica Duffett, a licensed Speech Language Pathologist.

Snow (1989) suggested that a child’s ability in conversation (and many aspects of linguistic acquisition therein) may not be fully revealed when a child speaks with an adult that they know. The caution here being that familiar adults will provide much scaffolding of structure and support the speaker’s participation as well as allow for use of shared knowledge. The recording and transcription procedures of this study should’ve helped to reveal if such glossing, or adulteration of the sample by the sampler, occurred during the data gathering process. No such glossing by the researcher was found.
Data Analysis

Data analysis was completed following the transcription of the recorded language samples. While the language sampling collection process itself was brief, researchers seeking to replicate this study or its methods should be advised that the transcription and analysis performed by the researcher took approximately 10 hours per student. Further, as the researcher discovered, a background in language structure, education, or even general educational research may not adequately prepare one to perform language function analysis. Rather, functional language analysis is a complex task involving its own methods and technical vocabulary which are quite different from the methods and vocabulary used in structural types of analysis. As such, the researcher strongly encourages readers seeking to replicate the study or study methods to seek out education and information on language function prior to beginning their endeavor.

For this study, generally, analysis was completed by the researcher via deductive coding using predefined categories based on criteria from literature on language function(s) or other categories pertinent to the study. The researcher did this by reviewing and comparing printed copies of the transcribed language samples from each student to existing literature regarding what would be expected for typically developing youth the ages of those in the study. Samples were analyzed for both the specific functions of the task as well as their linguistic functions. In some instances participants’ language was so restricted that by definition their language functions
were also restricted. The findings from these individual transcripts were then combined into tables created according to the predefined language function based criteria used for analysis.

**Research Question 1**

Analysis for Research Question 1 with regard to the verbal prompt included analysis of the number of arguments students provided, the language function level of their provided response, and a temporal analysis to gauge whether they used auditory or visual metacognition which might indicate a relationship between thinking and social development. In functional language analysis arguments are individual ideas shared by an individual. Figure 3.1 below derived from Arwood and Beggs (p.3) (1992) shows two illustrations of how arguments might be combined to form propositions.
The evaluator asked, “Tell me what you do on a typical day at school.” The student replied, “Well, we start out usually with this early bird math class. I go there at 7:45 and we do harder 6th grade math stuff with our teacher and then at 8:20 all the other kids start coming in. It’s only half the class that goes to early bird math.”

In this sample, the 11 year old boy establishes a proposition as he connects three ideas temporally “I go there (referring back to “early bird” math class) at 7:45 and we do harder 6th grade math stuff... and then at 8:20...”

The evaluator has asked the child to talk about a trip she made to the grocery store. “After getting to the store, we got a cart and headed right for the candy counter. I picked out five kinds of candy, then carried them to the check-out counter and paid for them with my allowance money.”

In this sample, a nine year old girl establishes a proposition by connecting three ideas temporally as she refers back to a previously mentioned event (going to the store) and then connects two more ideas about the trip to the story with a temporal marker “and.” The next idea again refers back to “candy” and she uses “then” and “and” to connect the ideas telling about buying the candy. The verb tenses also serve to move the listener through time. The over-all effect is a clear unambiguous referent that moves the listener through time.

<table>
<thead>
<tr>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The evaluator asked, “Tell me what you do on a typical day at school.”</td>
<td>The evaluator has asked the child to talk about a trip she made to the</td>
</tr>
<tr>
<td>The student replied, “Well, we start out usually with this early bird</td>
<td>grocery store. “After getting to the store, we got a cart and headed</td>
</tr>
<tr>
<td>math class. I go there at 7:45 and we do harder 6th grade math stuff</td>
<td>right for the candy counter. I picked out five kinds of candy, then</td>
</tr>
<tr>
<td>with our teacher and then at 8:20 all the other kids start coming in.</td>
<td>carried them to the check-out counter and paid for them with my allowance</td>
</tr>
<tr>
<td>It’s only half the class that goes to early bird math.”</td>
<td>money.”</td>
</tr>
</tbody>
</table>

In this sample, the 11 year old boy establishes a proposition as he connects three ideas temporally “I go there (referring back to “early bird” math class) at 7:45 and we do harder 6th grade math stuff... and then at 8:20...”

<table>
<thead>
<tr>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The evaluator has asked the child to talk about a trip she made to the</td>
</tr>
</tbody>
</table>
| grocery store. “After getting to the store, we got a cart and headed right for the candy counter. I picked out five kinds of candy, then carried them to the check-out counter and paid for them with my allowance money.”

In this sample, a nine year old girl establishes a proposition by connecting three ideas temporally as she refers back to a previously mentioned event (going to the store) and then connects two more ideas about the trip to the story with a temporal marker “and.” The next idea again refers back to “candy” and she uses “then” and “and” to connect the ideas telling about buying the candy. The verb tenses also serve to move the listener through time. The over-all effect is a clear unambiguous referent that moves the listener through time.

**Figure 3.1.** Examples of how arguments can be combined to form propositions.

**Verbal Prompt.** Typically developing youth, by the age of 8, if they use a visual cognition system should be able to answer the prompt using two or more arguments linked with a third argument to create propositions or a set of arguments across space and time. Alternately, those who use an auditory cognition system should be able to answer the question with arguments that are predicated by time. In either case they should also be able to respond using complete grammar; and, the
listener should be able to easily understand what they do on a typical day. For young people attending school, like those in the study, their answers may be reasonably expected to inform the listener about their school day including getting to school, what they do at school, and their exit from school and any ensuing evening activities (Arwood & Beggs, 1992).

For readers unfamiliar with typical and atypical language development particularly with regard to possible responses to the typical day query, example responses are provided in Figure 3.2. These examples are taken from Arwood’s (1991; 2011) research and publications, they are not from students in this study. Transcripts of the typical day query responses by the students in this study have been provided in Appendix B.
<table>
<thead>
<tr>
<th>Typically expected language development</th>
<th>Atypical language development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample response from a 19 year old:</strong></td>
<td><strong>Sample response from a 19 year old:</strong></td>
</tr>
<tr>
<td>I get, I would get up and usually not take a shower because I was too lazy. I put a cap on so my hair wouldn’t look too nappy and go to class. And, uh, after I got out of class, I would go back to my room and sometimes watch TV for a while, sometimes study and I, and I would just do that for most of the afternoon, read or something, and I would go down (cafeteria in dorm) and eat and then I would go to work and I would usually be there anywhere from two to three or four hours. I’d usually get back around ten, eleven, twelve, depending on which night it was and then I would study some more and listen to records for a while, sometimes write most of the night.</td>
<td>Usually I’ll sleep in and, and, and uh, if I get the chance, if the television’s on I’ll go right for it but otherwise I’ll read and I like to read. If I have a good book, I’ll read ‘til midnight, from morning ‘til midnight but other than that I’ll read science magazines or I might go and something, if I’m real curious about something I might go to the library and look it up there. And study it some. Sometimes I get into little patterns where I can’t get out of and I find something interesting and it leads to other things and that I could spend my whole day doing that or it can go that I don’t feel like doing anything and I’ll watch TV. I kinda hate that thing… (The speaker continued on and on about “things” until the person collecting the sample said, “I get the idea. I think I have plenty of language to transcribe.”)</td>
</tr>
<tr>
<td><strong>Sample response from a six year old:</strong></td>
<td><strong>Sample response from a six year old:</strong></td>
</tr>
<tr>
<td>Sit and watch Nickelodeon, um, my mom sometimes goes to Clackamas or sometimes I might go to Gladis’. Then I’ll have lunch and then I’ll watch the afternoon cartoons and after that the day’s over and then I watch Bill Cosby and then I wait awhile and watch Batman. After I watch Batman, I take my bath, go to bed, sleep all night ‘til morning – and that’s what I do on a typical day.</td>
<td>(The child cannot provide an answer to the question and the question must be changed to lower the cognitive level of the task.)</td>
</tr>
</tbody>
</table>

*Figure 3.2. Example responses to the typical day query – What do you do on a typical day?*

To perform the analysis of the responses to the verbal prompt, the researcher printed copies of each students’ transcribed language sample and reviewed them using
a deductive coding process with pre-defined criteria. In addition to the participants’
ability to answer the question as expected, the number of arguments each participant
provided were counted and recorded on printed copies of the transcript. If the student
provided no arguments during the language sampling procedures the researcher
lowered the level of the prompt and the arguments students provided for the lowered
prompt were recorded in addition to the 0 denoting their response to the original
prompt. Inability to answer the question as expected either by providing no arguments
or by failing to provide arguments sufficient to combine to form propositions to
answer the question indicated that students were at a pre-language level. Temporal
analysis was also completed via review of the printed transcript. Temporal analysis
refers to whether the students used auditory propositions appropriately employing time
elements (i.e. before, after, then) to answer the prompt signifying auditory
metacognition or if they did not which would signify visual metacognition. During
the course of the researcher’s review of the transcripts, particularly salient examples of
student responses were also highlighted for later inclusion in Chapter 4 to serve as
specific sample illustrations of the researcher’s findings.

The researcher then reviewed the various printed copies of the transcripts and
created a table of results based on the predefined criteria. The table contained the
number of arguments provided in response to the verbal prompt. It additionally
contained the results of the coding for language function. Possible values for the
Language Function levels for the resulting table from the data related to the verbal
prompt were as follows; PL=Pre-Language, L=Language, Li=Linguistic. Finally, in that same table, the researcher also noted the results of the temporal analysis. Possible values for that field were; A= Auditory metacognition, V=Visual metacognition.

**Stories for Pictures.** Further analysis with regard to Research Question 1 was completed by analyzing the stories told by the students for the APRICOT I and APRICOT II pictures. Analysis of each of the participants’ stories was performed by reviewing printed transcripts of the language samples again using deductive coding with pre-defined criteria based on existing literature on language function.

Students, the age of those in the study, should be able to tell a grammatically correct story with maximal expansion, extension, modulation and relationships among the agents for pictures at the pre-operational (APRICOT I) and concrete (APRICOT II) cognitive levels (Arwood, 1991; 2011). The stories should additionally have a beginning, middle, and an end. For readers unfamiliar with such qualities, Figure 3.3 provides definitions for expansion, extension, and modulation taken from Arwood (pp. 383-387) (2011).
<table>
<thead>
<tr>
<th>Language Function Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expansion</td>
<td>Sentence structure complexity increases such as “the dog is big” becomes “the big dog belongs to my sister.”</td>
</tr>
<tr>
<td>Extension</td>
<td>Process by which meaning is added to underlying thoughts, so an agent becomes “boy.”</td>
</tr>
<tr>
<td>Modulation</td>
<td>Changing the meaning of language such as adding morphemes to words; for example, add “-ly” to terrible to change an adjective to an adverb.</td>
</tr>
</tbody>
</table>

*Figure 3.3. What are expansion, extension, and modulation?*

Figure 3.4 shows an example of the types of deficits in language function that might expected from those with atypical language development as was expected by the researcher to be found among those in this study. This example and analysis was taken from Arwood’s (1991) research, it is not from students in this study. Transcripts of the participants of this study’s stories have been provided in Appendix B.
**Atypical language development for stories (A)**

**Sample story from a 13 year old:**

Okay, once upon a time there was this family, Mom and Dad and they had two kids, a girl and a boy and um they, they ___ [these are unintelligible utterances] something to do during the summer so they went and picked some apples off their apple tree in their backyard and then, um, when they ate ‘em, they fell asleep and after they were done, they fell asleep and when they woke up the next morning, they didn’t know what happened and they forgot what their names and everything were. But their names were Jane, the boy’s name was John, the mother’s and father’s name was George and Sarah. And they didn’t know what their names were anyway, so they went around looking and they didn’t know where they were from or anything and the police ask ‘em what their names were and they didn’t know and the apples had some type of potion in it or something like that. And they got, they got, um somebody to tell them, to make up a name and where they lived and everything.

**Analysis of the sample story:**

When discussing things in the picture the utterances are expanded (ie “picked some apples off their tree”), extended (ie “John,” “Jane,” “George,” “names,” and “kids” for boy, girl, mother, and father), and modulated (ie “picked some apples off their apple tree.”). However, the level of function drops when the discussion moves to things not on the page (ie the unintelligible speech when he begins to discuss the summer which is not depicted).

Additionally, the sample shows problems with space, quantity, quality, and time markers. While temporal phrases are used (ie “during the summer”) they don’t actually function linguistically to connect two or more refined relationships. For example: “they ___[unintelligible] something to do during the summer, so they went and picked some apples off their tree apple tree in the backyard and then, um, when they ate ‘em, they fell asleep and after they were done…” The connection between wanting something to do during the summer, picking apples, and eating them is unrefined. Did they want something to do during the summer? Or did they want something to eat? Because the semantic meaning is unclear it suggests that the underlying time concepts are unclear, indicative of pre-language function.

**Figure 3.4.** Potential problems in storytelling using event-based pictures.

Figure 3.5 shows another example of the types of deficits in language function that might expected from those with atypical language development as was expected
by the researcher to be found among those in this study. This example and analysis was taken from Arwood’s (2011) research, it is not from students in this study.

<table>
<thead>
<tr>
<th>Atypical language development for stories (B)</th>
<th>Specific analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample story from a nine year old:</strong></td>
<td><strong>Analysis of the sample story:</strong></td>
</tr>
<tr>
<td>This girl holdin’ the net. This boy catchin’ the butterflies, This girl standin’. This jar on the ground. The end.</td>
<td>Rather than connecting or establishing relationships among the individuals, the child has simply listed them. This fails to provide a who, what, where, and when for the individuals in the picture the story is based on. An actual story for this picture was suggested to be as follows: This is a story about three children, Misty, Sicily, and Billy. Misty told Sicily and Billy that she wanted to catch some butterflies and that she needed Sicily and Billy to help her. Sicily and Billy said they would help Misty catch the butterflies. So, Misty, Sicily, and Billy walked to the park to catch the butterflies. Misty took the net so that she could catch the butterflies in her net while Billy took the jar to put the butterflies in and Sicily said she would help carry the butterflies. Additionally, some function words are missing indicating restricted grammar (ie “This girl [is] holdin’ the net”). Further the expected expansions, extensions, and modulations are incomplete so the language is restricted as indicated by lack of establishing a connection between the net holding and the butterfly catching.</td>
</tr>
</tbody>
</table>

*Figure 3.5. More potential problems in storytelling using event-based pictures.*
For this study, the researcher reviewed printed transcripts of the language samples for each participant. During this review he marked on the printed transcripts any instances where the expected story qualities were present or absent. After the researcher had sufficiently coded each transcript noting the presence or absence of the expected qualities the researcher then used those findings to populate a table. The table was created to allow for indication of whether the students’ stories contained all the expected qualities or not. Values for the table were Y or N, with Y indicating that the student’s story had been found to have all the expected qualities and N indicating the absence of one or more of the expected qualities. During the course of the researcher’s review of the transcripts, particularly salient examples of student responses were also highlighted for later inclusion in Chapter 4 to serve as specific sample illustrations of the researcher’s findings.

**Research Question 2**

Analysis for Research Question 2 was conducted by reviewing the language sample transcripts to determine whether students made connections among the agents in their stories and assessing whether those connections were pro-social, anti-social, mixed, or non-definitive. Each of these findings was marked on printed copies of the transcripts which were then collectively reviewed by the researcher and the findings consolidated into a table for presentation in Chapter 4. Typically developing youth the age of the participants of the study should be able to make connections among the agents in both the APRICOT I and APRICOT II pictures.
Further, they should be able to do so linguistically, using pro-social concepts, if they’ve acquired such. Connections were judged to exist where students provided a story that featured interactions among the agents they identified rather than simply listing agents (for an example of a story without such connections where agents are simply listed see Figure 3.5). Determinations regarding the pro-social or anti-social nature of participants’ concepts expressed for the APRICOT I and APRICOT II story-telling tasks as well as the cartooning task looked for the qualities of pro-social and anti-social interaction contained in those samples as defined in Chapter One and Chapter Two of this document.

Anti-social concepts were defined in Chapter One to be physical or non-physical acts that are performed aggressively as to be felt or noticed by a victim or onlookers however they do not include risk-taking behaviors (Dalton, 2010). Examples of anti-social behaviors from students’ stories that fit that definition include violence towards others, violence towards objects in the presence of others, and verbal abuse among characters in the stories or denigration of depicted agents by the storytellers themselves. Alternately pro-social concepts as defined for the purposes of this study are those that reflect personal care and empathy (Serow, 1991) through nurturance, support, inclusion, and age-appropriate protection or safety-provision such as in care for a child (Goldstein, 1998). Such definitions of pro-social and anti-social action or behavior are in keeping with the definitions by Arwood (2011). Her work defined pro-social behavior as being that which contributed positively to the initiation
and maintenance of healthy relationships, while defining anti-social behavior as having the opposite characteristics. In the event that the stories of the participants in this study contained elements of both pro-social and antisocial interaction they were judged to be mixed and marked as such (rather than simply pro-social or anti-social). In instances where the connections among agents were not clearly in keeping with the definitions for pro-social or antisocial the connections were deemed to be non-definitive.

For this study, the researcher reviewed printed transcripts of the language samples for each participant. During this review he marked on the printed transcripts any instances where the students made connections among agents and his findings regarding the pro-social or antisocial nature of those connections. After the researcher had sufficiently coded each transcript he created a table of results. The table was created using the pre-defined criteria used in the coding of each transcript. For the table field Connect a value of Yes meant a participant made connections among the agents, a value of No meant they did not. Values for the Pro/Anti fields of the table referred to the pro-social or anti-social qualities of the connections the participants made among the agents for their various stories. Coding for that field was indicated by ND= Not definitive, Pro= Pro-social, Anti= Anti-social, or Mixed= if both pro-social and anti-social connections were made. During the course of the researcher’s review of the transcripts, particularly salient examples of student responses were also
highlighted for later inclusion in Chapter 4 to serve as specific sample illustrations of the researcher’s findings.

**Research Question 3**

The analysis for Research Question 3 was conducted by examining students’ cartoons to reveal if they displayed more complex ideas than they’d talked about, whether their writing and their drawing matched, and whether their story complexity rose when they were given the opportunity to cartoon. Additionally, the grammar and language function of their writing was examined.

If the students in the study had typically developing language function, their cartooning should match their orally told story and for their age would show maximal function and grammar while telling a complete story with a beginning, middle, and end. If they have higher cognitive levels than their language development then their stories would show gaps between what they could draw and write versus what they said.

For visual thinkers who have had instruction in how to best use their own learning system to develop their ideas the opportunity to cartoon their stories should allow for increases in the complexity of both their stories and also the ideas contained within them. For readers unfamiliar with cartooning as tool for evaluating language function Figure 3.6, below, from Arwood and Brown (1999) (p. 19) explains how some cartoons fail to connect ideas across frames requiring the viewer to make the mental connections for themselves.
Figure 3.6. An example of a cartoon that doesn’t provide a consistent set of ideas.

According to analysis of the cartooned picture in Figure 3.6 by Arwood and Brown (1999), the cartoon appears to present three different ideas. This is because it is unclear if the stick figure is the same person and also due to the fact that the objects are all different - thus the ideas may or may not be part of one story. Without background to show relationships among the pictures, the viewer is unclear if they’re actually viewing three unrelated stories. The lack of overlap between the pictures creates such inconsistent understanding.

Alternately, some cartoons can offer rich and conceptually related storylines that communicate complex ideas about connections and relations among agents and their actions. An example of such a cartoon from Arwood, Brown, and Kaulitz’s (2015) Figure 8.11 is shown in this document’s Figure 3.7 below.
Figure 3.7. An example of a cartoon that provides a consistent set of ideas and writing.

As demonstrated in Figure 3.7 cartoons that provide sufficient overlap create consistency that provides the viewer with the connections necessary to fully see the cartoonist’s ideas and their relationships. To accomplish the analysis of participants’ language samples for Research Question 3 the researcher reviewed printed copies of the participants’ cartoons and compared them to printed transcripts of the students’ stories. The researcher then marked any evidence of differences between what was said and what was drawn and written. Additionally, any differences between what
was drawn and what was written were also noted. Further, similar assessments were made regarding the complexity of concepts and complexity of the stories themselves by looking in part for consistency across story frames (as may be seen in Figure 3.7 but not in Figure 3.6). For grammar analysis, students who used complete sentences throughout their writing with appropriate tense modulation were rated as using adult grammar, students who did not use complete sentences with expected tense modulation were rated as having restricted grammar. Language function levels were determined following the same guidelines established for gauging the language function levels of participants’ orally told stories as described in the section above regarding stories for pictures under the Research Question 1 heading.

After the coding of each of the participants’ cartoons, the findings from each participant were then consolidated into a table using the pre-defined criteria. For that table, Write or Draw first referred to whether the student opted to write first or draw first. More complex ideas referred to whether or not a student’s cartooning showed more complex ideas that their orally told story. Writing matches drawing referred to whether the students’ drawing matched their writing. Writing and drawing match oral story referred to whether or not a student’s cartooning match their oral story, for this to be true their writing and drawing had to match as well. Higher story complexity referred to whether or not the stories students told had greater complexity. Grammar level referred to the grammar level of the students’ writing for the story and was noted as either Adult in cases of adult grammar or Rest. in cases where student samples
displayed restricted grammar. Functional level referred to the functional language level of the student’s writing for their cartoon. Possible values for Functional level were; PL= Pre-Language, L=Language, Li=Linguistic.

**Research Question 4**

Analysis for Research Question 4 was conducted via an integrated analysis of the findings from the prior steps allowing the researcher to create a meta-table. For this meta-table the auditory prompt provided a task at the formal cognitive level. The APRICOT I picture story-telling task provided a task at the pre-operational level. The two stories told for APRICOT II pictures provided the language sample for the task at the concrete level. Possible values for that table’s indicator of student’s functional language level for each task level were; PL= Pre-Language, L=Language, Li=Linguistic.

In addition to the researcher’s review and assessment of the samples, Dr. Arwood, a the supervisor for this dissertation work and a recognized expert with a significant background in functional language analysis, reviewed the language samples as well in a blind analysis which obscured students’ membership in the Core or Comparison Groups. Dr. Arwood’s findings regarding language function levels and relative overall lack of consistently pro-social applications of concepts by study participants in their stories fully concurred with those of the researcher for each participant. In some instances Arwood and the researcher held differences in their initial primary reasoning behind their assessment (as an example, for Student 4 the
researcher first noted a lack of propositions in response to the verbal prompt while Arwood first noted a lack of functors) but the overall findings remained consistent for each question for each participant.

**Summary**

A purposive sample of the most socially disruptive and defiant youth attending a well-regarded alternative school program was selected to individually provide language samples for functional analysis. A further Comparison Group of five other students identified as the most successful at the school were also identified to provide samples. A final student was selected to further confirm or refute any findings. Language samples were acquired for analysis using materials that reflect an array of cognitive, social, and linguistic levels. Materials included were picture sets from the APRICOT I and APRICOT II collections as well as a verbal prompt. Students were asked to verbally tell a story about each picture they selected from the sets provided by the researcher; additionally they were asked to describe what they do on a typical day.

These procedures were designed to answer the following four research questions:

1. What gaps, if any, exist between typical language development and the language development of the participants of the study as measured by a functional language sampling assessment?
2. Given a picture of a social event with shared activities, will the participants make pro-social or antisocial connections among the agents?
3. When cartooning to visually represent a participant’s understanding of possible moral transgressions, does the participant’s drawing and writing show a social, cognitive, and/or a language gap between what the participant draws and writes and what the participant tells about the concepts?

4. Will participants show a difference in language function when the task requires higher and/or lower levels of cognition?

Each of the procedures offered an opportunity to address Research Question 1 as each provided an opportunity to verify the language development of the individual participants. Generally, neuro-typical students of the participants’ ages should display complete grammar and functional language (in their L1) (Arwood, 2011). Research Question 2 was addressed by analysis of the language samples from the APRICOT I and APRICOT II pictures. Language samples acquired using those pictures allowed for analysis of students’ perception of pro-social or anti-social connections among the agents in the pictures. Further, the cartooning out of one of the two language samples from the participants, gathered in response to the APRICOT II pictures, satisfied Research Question 3 regarding whether the participants’ drawing and writing matched their oral language. Given that the varying pictures displayed to students, as well as the verbal prompt, addressed three different cognitive levels, Question 4 was answered by comparing student language function across the different samples.
Chapter Four includes results from the sampling procedures described above as well as analysis of those results. Student cartoons are provided as well. Transcripts of student language samples are provided in Appendix B. Chapter Four answers each research question for each study participant and additionally contains a comparison among the groups.
Chapter 4: Results

Research Questions

This study sought to address the research questions found below.

1. What gaps, if any, exist between typical language development and the language development of the participants of the study as measured by a functional language sampling assessment?

2. Given a picture of a social event with shared activities, will the participants make pro-social or antisocial connections among the agents?

3. When cartooning to visually represent a participant’s understanding of possible moral transgressions, does the participant’s drawing and writing show a social, cognitive, and/or a language gap between what the participant draws and writes and what the participant tells about the concepts?

4. Will participants show a difference in language function when the task requires higher and/or lower levels of cognition?

Introduction

This chapter will provide the results from the study. This study used a research design specifically chosen to investigate functional language acquisition among a purposive sample of behaviorally challenged students attending an alternative school as well as their more academically and behaviorally successful peers at the same school. The former group of youths composed the Core Group of students for the
study, the latter composed the Comparison Group. Because this study used a purposive sample, this study may be understood to be a case study as described by Merriam (2009). The Core Group of students selected as participants were selected for the significant level of aberrance or lack of adherence to academic social conventions that their behavior at least semi-regularly displays. This research is in keeping with the belief that the acquisition of pro-social concepts guides the moral development of individuals within the dominant US culture. A Comparison Group, comprised of a similar number of students (five) identified as the most academic and behaviorally successful at the school, was also sampled. Additionally, a final student, identified by the school administration as the least successful student behaviorally during the first quarter of the 2015-2016 school year, was sampled as well to provide a Confirmation Case with which to confirm or refute any themes or patterns from the findings for the other two groups.

The sampling strategy was intended to provide a Core Group of the most behaviorally challenged students over the duration of the prior year as well as to provide data for comparison purposes from a group of more successful students at the same alternative school and finally to further confirm or refute any patterns a similarly behaviorally challenged student was selected as a Confirmation Case. This student’s behavior over the first quarter of the 2015-2016 school year had resulted in his receiving numerous office referrals for disruption and defiance similar to those received by members of the Core Group.
Findings from the analysis suggested that all of the students in the study have language function deficits. This confirmed the researcher’s suspicion based on the findings of the literature review that the presence of students in an alternative school may be indicative of those students’ failure to acquire the functional language necessary to successfully match academic and social behavior to succeed in mainstream educational environments. Additionally, the members of the Comparison Group were more likely to make anti-social connections among agents as well as to make anti-social judgments of the agents depicted in the pictures than students in the Core Group. Students’ cartooning of their ideas provided no additional complexity to their stories or the concepts within them. Further, while participants’ language function across all of the study tasks was at the pre-language level, some required the initial, formal-level, task to be modified to even provide a response for that task. Students in the Comparison Group were observed to generally have acquired more language structures, but they were not able to functionally utilize them in a way that raised their language function.

This chapter is divided into sections based on the four research questions. An additional section addresses the findings for the Confirmation Case. Each of the research questions was addressed for each student in the study. Each research question’s section has a table of results that summarizes the findings for that question followed by information and examples of the findings for the individual participants.
Research Question 1

What gaps, if any, exist between typical language development and the language development of the participants of the study as measured by a functional language sampling assessment?

Group Data

Based on the researcher’s multidisciplinary review of literature as provided in Chapter 2 of this document, the researcher expected that all students in the study would show atypical language development and that the students of the Core Group would show the most restricted language. Student results for the first test of language function, the verbal prompt are shown in Table 4.1 below.

In this study, four of the students could not provide any language meeting the criteria for arguments in response to the initial prompt. Thus in some instances the displacement and the semanticity of the question was reduced to help the student better access the semantic meaning of the question. Often this meant rephrasing the question or agreeing with a students’ reframing of the question to refer to a typical school day. In these instances, by providing a prompt the student was able to provide arguments in response to, the researcher was provided with more data and the student’s abilities as a learner were respected. Such instances are noted in the table.
Table 4.1

Findings for student language function with regard to the verbal prompt

<table>
<thead>
<tr>
<th></th>
<th>Core Group</th>
<th>Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Arguments</td>
<td>0/2</td>
<td>5</td>
</tr>
<tr>
<td>Language Function</td>
<td>PL</td>
<td>PL</td>
</tr>
<tr>
<td>Temporal Analysis</td>
<td>V</td>
<td>V</td>
</tr>
</tbody>
</table>

In addition to the participants’ ability to answer the question as expected, the number of arguments each participant provided was also recorded. Overall, the highest numbers of arguments came from the students in the Comparison Group which suggests at least some of them have acquired a lot of language structures, even if they don’t have functional command of them. In the event a student provided no arguments, the researcher lowered the level of the prompt and the arguments students provided for the lowered prompt were recorded in addition to the 0 denoting their response to the original prompt. Inability to answer the question as expected either by providing no arguments or by failing to provide arguments sufficient to combine to form propositions to answer the question indicates that students are at a pre-language level. Possible values for that field were as follows; PL=Pre-Language, L=Language, Li=Linguistic. Temporal analysis refers to whether the students used auditory propositions employing time elements to answer the prompt signifying auditory
metacognition or if they did not which would signify visual metacognition. Possible values for that field were; A= Auditory metacognition, V=Visual metacognition.

**Individual Data for the Typical Day Prompt**

In response to the verbal prompt, Student 1 replied, “What do you mean?” The researcher modified the prompt by explaining that because the researcher wasn’t with the student all the time he wasn’t sure what the student did. In response to this clarification the student offered two arguments but still wasn’t able to answer the prompt as expected according to the norms for his age. While Student 2 offered a series of arguments they weren’t linked to create a proposition but rather were vague, truncated, and failed to provide a complete picture of his typical day. His reply, “Just walk in get my stuff go to class kick it with Bobby tryn stay focused on work.”

Student 3 also provided arguments in response to the verbal prompt without it being modified, however her arguments were unexpanded and disconnected. Additionally, her response seemed to contain a number of borrowed language structures taken from others she didn’t fully utilize to answer the question (i.e., “I’ll just be constantly just striving through all the obstacles that I come to”).

Student 4 provided no arguments in response to the original verbal prompt (he asked, “Eh in school? Or at home?”). Because of this the displacement of the prompt was lowered from a typical day to a school day. To this more accessible prompt Student 4 provided a number of arguments though they were insufficient to provide the listener with a complete picture of his typical school day and lacked necessary
functors. His response provided a list of things that he did between waking up and the
first few minutes following his arrival at school and he closed by saying, “…then I
wait for class to start and go to the my day.” In addition, Student 4 also indicated an
auditory misperception regarding the word “usually” as he left out the /l/ sound from
the word multiple times.

Students from the Comparison Group did not show greater language function
than the students in the Core Group. Student 5’s arguments didn’t serve to move the
listener temporally through his day. Instead he began describing his day with waking
up and coming to school but then diverged from the expected answer format
explaining that after arriving he would, “…sit in my class sometimes fall asleep uh
just try to do my schoolwork um like Annie’s class or Dave’s class I fall asleep in
there semi-frequently but I always get my work done so it’s very conflicting she says
I’m the first student she’s ever met to be sleeping a lot but always have his work done
at the same time.” Thus his answer failed to use the necessary arguments to form
propositions that might provide the listener with a complete explanation of his day.
Student 6’s response provided two arguments but like Student 5’s they didn’t serve to
provide the listener with an understanding of the events that composed his typical day.
His response, “At school on a typical day I spend my first 30 minutes a class doin’
some work and then I play on my phone for like an hour.”

Student 7 provided the most arguments of any student in study. While these
arguments may have been aimed at moving the listener temporally through her day,
they failed to demonstrate the necessary functional language development to create the semantically meaningful propositions necessary to provide an appropriate answer to the typical day query. As a result her description of her typical day includes a number of relatively vague structures that are never refined through the combination of arguments to create propositions. For example, when she endeavored to share her experience related to her first two classes she said, “…I just go to Melissa’s class and then Brian’s class which is kinda divided up weird in the sense that like we’re doing like kind of nonsense work in Melissa’s and then the actual work in Brian’s so it it’s weird […]” Thus Student 7 failed to connect the arguments related to Melissa’s and Brian’s classes in the expected manner as she didn’t include a third argument that would add semantic meaning by creating a proposition explaining her assertion of weirdness.

Student 8 provided no arguments in response to the first iteration of the verbal prompt so the researcher lowered the displacement of the prompt by inquiring about what a typical day looked like for the student. This made the prompt more accessible to Student 8, given his visual metacognitive system. To the modified prompt Student 8 was able to provide a high number of arguments, but these arguments were sometimes in conflict for example he said that school mostly occupies me but also that I’ve got a lot of time on my hands. Such conflicting statements and his inability to create propositions using the arguments he produced suggest that, like others in the
study, his acquired language structures may be high in number but the underlying semantic meaning of those structures remains unrefined.

Like Student 8, Student 9 similarly required modification of the query as he also provided no arguments in response to the original form but rather asked, “Typical day at just school ya know?” Student 9’s response to the modified prompt suggested provided a number of arguments; but, like the other students in the sample, he didn’t link them to create any propositions that might help the listener get a full understanding of his typical day. An example of this is his description of his morning about which he said, “…I just eat breakfast go to school you know go to math class and ya know I don’t I don’t really do much during lunch I don’t like go hang around all around other places […]” Thus he provided a series of disconnected unexpanded events instead of the arguments combined to form propositions that would be typically expected for someone his age and better allow him to answer the question.

**Group Data for Stories for the Pre-Operational Event-Based Picture**

Student results for the second test of language function, the APRICOT I picture story telling task, are in Table 4.2 below. As indicated by the findings shown in Table 4.2, none of the youth in the study were able to do this.
Table 4.2

*Findings for student language function with regard to the pre-operational APRICOT I story task*

<table>
<thead>
<tr>
<th></th>
<th>Core Group</th>
<th>Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Story met expectations&lt;sup&gt;a&lt;/sup&gt;</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

*Note.*<sup>a</sup>Stories meeting expectations were denoted by Y, those that didn’t meet expectations are indicated with a N.

**Individual Data for the Pre-Operational Event-Based Picture**

The stories of the students in the Core Group showed a variety of language function deficits compared to what would be expected for youth their ages with typical language development. Examples of these deficits are shown in Figure 4.1 below.
Student Story Excerpts

Student 1- [...] they were brothers and they’ve been wanting to go out to a park and have fun and have a picnic for quite a while and so since it was finally summer they got nice weather and so their parents finally got a day off from work so they all went to the park and had a nice picnic and then .. Chris and Ben were playing and Chris threw a ball at the table and knocked over the juice for the picnic and then .. yeah .. yeah I dunno anymore.

Student 3- “When I see this I see um I see people struggling and I see uh a kite which once was used for happiness now it’s making them sad because they don’t have it and um ladder teamwork they’re trying to get that kite back down so they can use it again and uh probably (points at youngest child far left) th-most basic form of a human he’s just observing everything maybe not talking but he’s just looking at what’s going on around him and the scenery and trying to put pieces together for himself I think yeah”

Specific analysis

Student 1’s explanation of why they went to the park contains some unrelated ideas. The explanation that the parents had the day off because the weather was nice lacks the necessary linguistic expansion for the listener to make sense of this aspect of the story.

Additionally and then.. yeah .. yeah I dunno anymore doesn’t provide an ending to his story.

Student 3 has provided a listing of agents she sees in the picture but failed to fully connect them in any expanded and meaningful way.

Figure 4.1. Examples of Core Group participants’ APRICOT I stories and analysis.

Student 1’s story, in addition to having some extension problems resulting in plot disconnects, didn’t have an end. Student 2’s story had minimal expansion and lacked the modulation to create the tense changes necessary to indicate the connections among semantic relationships through time. His story also lacked a
beginning. Student 3’s story didn’t have a beginning or end or relationships among all the agents but rather seemed to be a verbal listing of her evaluations of the various agents depicted in the picture. Student 4’s story lacked the modulation of tense necessary to appropriately link events through time and had limited expansion.

The students of the Comparison Group didn’t fare much better at the task. Examples of their stories and analysis are provided in Figure 4.2 below.
<table>
<thead>
<tr>
<th>Student Story Excerpts</th>
<th>Specific analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student 8</strong>- “[…] second time he tried to pass it to Ian and threw it at him <em>and Evan the ball</em> slipped right through his hands and uh the ball went in the street and next thing you know Evan is lookin’ looking both ways runs right out to it on the way back <em>he sees a car coming for his left eyesight for his left eye</em>[…]”</td>
<td>Student 8’s explanations that <em>and Evan the ball</em> and <em>he sees a car coming for his left eyesight for his left eye</em> both represent highly unconventional constructions that make his story very unclear. Where he’s tried to provide maximal expansions that would normally clarify meaning, his meaning has actually become less clear showing a gap between his abilities and those that would be expected of a typically developing youth his age.</td>
</tr>
<tr>
<td><strong>Student 9</strong>- “[…] I'll just that guy doesn’t really matter so they’re playing basketball and stuff and it seems like these two <em>it seems like he’s kind of a third wheel in there cuz these two seem to be attracting way more</em> looks like he threw the ball into the street and it looks like he’s about to go into the street and get hit by a ya know the guy driving the car so it's pretty basic ya know not very much uh not a lot of people playing basketball and also in a very strangely small court and a very also sorta strangely shaped one because I don’t see many courts on the side just on the side of a sidewalk and also one hoop and also there’s kinda look like uh they don't look like basketball uniforms[…]”</td>
<td>Student 9, rather than connecting all the agents, has dismissed one of them. He seems to begin to expand on this dismissal but then stops abruptly to talk about something else he sees in the picture. Then later his story diverges into his critique of the picture rather than providing a story about what’s happening in the picture.</td>
</tr>
</tbody>
</table>

*Figure 4.2. Examples of Comparison Group participants’ APRICOT I stories and analysis.*
Student 5’s story lacked an end and had limited extension. Student 6’s story lacked a proper beginning in addition to lacking maximal expansion. Student 7’s story lacked the necessary modulation of tense needed appropriately displace events across time to allow for a logical story progression and her story also lacked an end. Student 8’s story had a beginning, middle, and end but lacked maximal modulation, extension, and appropriate grammar making his story very hard to understand. Student 9’s story didn’t contain a beginning or end and the middle diverged from his story line to become a commentary on the problems he saw with the composition of the picture itself – a subject he provided greater extension for than was offered by his story itself.

**Group Data for the Concrete Event-Based Pictures**

Student results for the third test of language function, the APRICOT II picture story telling task, are in Table 4.3 below. As indicated by the findings shown in Table 4.3, none of the youth in the study were able to do this.
Table 4.3

*Findings for student language function with regard to the concrete APRICOT II story tasks*

<table>
<thead>
<tr>
<th></th>
<th>Core Group</th>
<th>Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
</tr>
<tr>
<td>AP II (A) Story met expectations&lt;sup&gt;a&lt;/sup&gt;</td>
<td>N N N N N N N N</td>
<td>N N N N N N</td>
</tr>
<tr>
<td>AP II (B) Story met expectations&lt;sup&gt;a&lt;/sup&gt;</td>
<td>N N N N N N N N</td>
<td>N N N N N N</td>
</tr>
</tbody>
</table>

*Note.* <sup>a</sup>Stories meeting expectations were denoted by Y, those that didn’t meet expectations are indicated with a N.

**Individual Data for the Concrete Event-Based Pictures**

Similar to their difficulties with the APRICOT I task the Core Group also struggled with the APRICOT II task. Examples of their difficulties in matching what would be expected for youth their age with typically developing language are shown in Figure 4.3 below.
**Student Story Excerpts**

**Student 2-** “well these ones they’re kind got this little girl skateboardin’ and kid just fell on his skateboard it’s not very safe got a motorcycle I think that he’s gonna like go off the jump (points to motorcycle) hehe and that kid was just testing it for him (points to kid who fell) ...makes sure the ramps safe... uh ya got learnin’... um... I’m very bad at story t-makin’ up.”

**Student 4-** “Um that these three … that these three people were playing on the ramp with their skateboards and or these two people were playing on their ramps with their skateboards and um one fell and um I really don’t know what else that’s all I know it’s all it looks like”

<table>
<thead>
<tr>
<th>Specific analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 2’s story offers no beginning or ending.</td>
</tr>
<tr>
<td>Student 2’s story also lacks expansion, extension and modulation.</td>
</tr>
<tr>
<td>Student 2’s story also lacks expected functors and age-appropriate grammar</td>
</tr>
<tr>
<td>Student 4 doesn’t provide a true beginning or end to his story.</td>
</tr>
<tr>
<td>Student 4’s story initially includes but then later leaves out one of the three agents depicted in the APRICOT II picture he chose.</td>
</tr>
</tbody>
</table>

Figure 4.3. Examples of Core Group participants’ APRICOT II stories and analysis.

Both of Student 1’s APRICOT II derived stories lacked maximal expansion in addition to having grammatical errors. Both of Student 2’s stories for the APRICOT II pictures he chose had grammatical errors, and lacked both beginnings and endings, and had limited expansion and extension. Student 3’s first story derived from an APRICOT II picture was simply a list of the various agents depicted and the actions they were depicted as performing rather than an actual story that provided relationships among all the agents. Her second story for a different APRICOT II picture lacked an ending and had limited extension with only one of the agents being
named and various agent actions being described in ways that were logically inconsistent. Student 4’s first story for the APRICOT II pictures didn’t contain a beginning or end and didn’t connect the agents but rather just listed them. His second APRICOT II based story had similar deficiencies, limited expansion, and ignored one of the agents depicted in the picture entirely.

The students of the Comparison Group did not fare significantly better on the task. Examples of their stories and analysis are provided in Figure 4.4 below.
Student Story Excerpts

_Student 5_- “[…] Uh ok so that guy that guy’s angry because his girlfriend broke up with him cause he has anger management problems henceforth he’s throwing trash into the ocean and I don’t really know what this guy’s story is but he’s staring at these people butterin themselves up with you know their suntan lotion while eating a bucket of fried chicken I dunno maybe they’re all friends but this guy bothers bothers me that wasn’t a story at all this is more observations I’m not good at making up stories[…]”

_Student 6_- “[…] so on this beautif’l summer day _Johnny and Bob were out playing_ in the backyard. Their mom was watering the grass _n then Bob got real mad when uh Jim went by and stuck his bat in the spokes n Jim hit the ground_ and hurt his knee real bad then their mom got real mad _n kicked the paint over_ and it was a sad day (laughing) that was not a very good story.”

Specific analysis

Among other problems with his story, Student 5, as he acknowledges, doesn’t really provide a story at all but rather a list of observations regarding the various agents. In Student 5’s own words, “that wasn’t a story at all this is more observations[…].”

Student 6, in addition to not providing a full ending to his story, also left out the modulation and expansion necessary to explain why agents who he said _were out playing_ lead to the event of _Bob got real mad when uh Jim went by and stuck his bat in the spokes_. It’s also unclear if he means to introduce Jim as a new agent separate from Johnny.

_Figure 4.4._ Examples of Comparison Group participants’ APRICOT II stories and analysis.

Student 5’s first story for an APRICOT II picture wasn’t a story with relationships among the agents, but rather a series of observations regarding the agents depicted in the picture (Student 5 himself even notes this discrepancy). His story for the second APRICOT II picture he chose lacked a beginning and an end in addition to
having grammatical errors and limited modulation and expansion. Student 6’s first story for an APRICOT II picture didn’t include an ending and didn’t demonstrate the expansion and modulation necessary to sufficiently explain the actions he described the depicted agents as having engaged in. His second story, for a different APRICOT II picture, had a beginning, middle, and end but lacked the expansion and extension necessary to effectively explain the actions of the agents he described. Student 7’s story for the first APRICOT II picture she chose lacked an end and had limited extension. Student 7’s second APRICOT II derived story had grammatical errors particularly with regard to tense causing her story to lack a definitive beginning and middle in addition to lacking an end. Student 8’s story for the first APRICOT II picture he chose lacked an end and had significant redundancy when he tried to expand on ideas in his story. His story for the second APRICOT II picture he chose lacked a logically sequential beginning and middle and contained no end. Student 9’s first story for an APRICOT II picture lacked sufficient expansion to create a clear beginning and middle. His second story for an APRICOT II picture lacked a clear beginning, middle, and end, and seemed to be more akin to a listing of the various agents he saw and his critiques of their depicted actions rather than describing the relationships among the agents.

Overall, the data gathered from the first research questions suggests significant deficits in language function among all of the students in the study. The methods provided multiple opportunities to investigate whether or not such existed and
universally across each task the students in the study performed well below what would be expected for neurotypically developing youth of their ages.

**Research Question 2**

Given a picture of a social event with shared activities, will the participants make pro-social or antisocial connections among the agents?

**Group Data for Connections Among Agents**

Findings for the evaluation of the connections made amongst agents in the students’ stories are shown in Table 4.4 below. In Table 4.4 the values for API Connect, APII(A) Connect, APII(B) Connect, and Cartoon Connect refer to whether the participant made connections among the agents in their stories for the APRICOT I, first APRICOT II, and second APRICOT II pictures they chose as well as their cartoons.
Table 4.4

*Findings for students’ connections among agents and the pro-social or anti-social nature thereof*

<table>
<thead>
<tr>
<th></th>
<th>Core Group</th>
<th>Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
</tr>
<tr>
<td>API Connect?a</td>
<td>Yes Yes No Yes Yes Yes Yes Yes</td>
<td>Yes ND ND ND No ND No ND ND No</td>
</tr>
<tr>
<td>Pro/Anti?b</td>
<td>ND ND ND Pro Anti Pro ND Anti Anti</td>
<td>Anti Anti Anti Anti Anti</td>
</tr>
<tr>
<td>APII(A) Connect?a</td>
<td>Yes No No No No Yes Yes Yes Yes</td>
<td>Yes Pro Mixed Anti Mixed Anti</td>
</tr>
<tr>
<td>Pro/Anti?b</td>
<td>Pro Mixed Anti Anti Anti Mixed Mixed Anti</td>
<td>Anti Anti Anti Anti Anti</td>
</tr>
<tr>
<td>APII(B) Connect?a</td>
<td>No No Yes No No Yes No Yes No</td>
<td>No Pro ND Mixed Mixed Anti</td>
</tr>
<tr>
<td>Pro/Anti?b</td>
<td>Mixed Pro ND ND Mixed Mixed Anti Mixed</td>
<td>Anti Anti Anti Anti Anti</td>
</tr>
<tr>
<td>Cartoon Connect?a</td>
<td>Yes No No Yes Yes No Yes No No</td>
<td>No Pro ND Pro Anti Mixed</td>
</tr>
<tr>
<td>Pro/Anti?b</td>
<td>Pro Pro ND Pro Pro Anti Mixed Anti</td>
<td>Anti Anti Anti Anti Anti</td>
</tr>
</tbody>
</table>

None of the students in either group were able to successfully connect all the agents in all of their stories in a pro-social manner. Only two of the students, both Comparison Group members, were able to connect all of the agents in each story they told.

**Individual Data for Connections Among Agents**

Examples of Core Group members’ agent connections and their relative pro or anti-social nature are contained in Figure 4.5.
<table>
<thead>
<tr>
<th>Student Story Excerpts</th>
<th>Specific analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1- “[…] nobody’s paying attention to him so he fell over and fell off the ladder and spilt the paint everywhere and hurt his knee so his brother n mom came rushin’ over to see if he was ok and help him up and clean up the mess […]”</td>
<td>The suggestion that Student 1 makes that he fell over and subsequently hurt his knee is an anti-social linguistic construction as it blames the agent for injuring his knee. However, the suggestion that his brother n mom came rushin’ over to see if he was ok and help him up qualifies as a pro-social care response. Thus the connections are mixed.</td>
</tr>
<tr>
<td>Student 2- “[…] they’re kind got this little girl skateboardin’ and kid just fell on his skateboard it’s not very safe got a motorcycle I think that he’s gonna like go off the jump (points to motorcycle) hehe and that kid was just testing it for him (points to kid who fell)...makes sure the ramps safe […]”</td>
<td>Student 2 has failed to connect this little girl to the rest of the agents in his story. Additionally, his story appears to suggest that the adult or older agent in the picture has a youth testing a potentially unsafe ramp prior to the adult’s use of the ramp. The youth who fell is not depicted wearing any safety equipment.</td>
</tr>
<tr>
<td>Student 3- “[…] uh looks like he looks a little concerned got off his board and seems to be observing the situation and thinking that something might not be right and this is uh this is Bob who came to the rescue an he’s just making sure that these kids aren’t um doing nothin’ they shouldn’t be […]”</td>
<td>In this story Student 3 made connections among each agent in the picture but both her suggestions regarding the agent responses to the fallen agent depicted were non-definitive. One of the agents looks a little concerned so they’re observing the situation doesn’t definitively rise to the level of a pro-social care response. Similarly though the agent she identifies as Bob came to the rescue she explains initially that this is to ensure that the kids aren’t um doing nothin’ they shouldn’t be which means Bob’s coming to the rescue is not necessarily a pro-social care response to injury.</td>
</tr>
</tbody>
</table>

Figure 4.5. Examples of Core Group participants’ agent connections analysis.

Examples of Comparison Group members’ agent connections and their relative pro or anti-social nature are contained in Figure 4.6.
<table>
<thead>
<tr>
<th>Student Story Excerpts</th>
<th>Specific analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Student 5</em>- “[…]I'm not good at making up stories but we’ll say Ken is a weirdo who</td>
<td>Student 5 himself engages in anti-social behavior by</td>
</tr>
<tr>
<td>stares at people and eats fried chicken[…]]”</td>
<td>calling Ken a name.</td>
</tr>
<tr>
<td><em>Student 6</em>- “[…]then all the sudden wind picks up kite gets stuck in the tree and</td>
<td>Student 6 has made the pro-social suggestion that</td>
</tr>
<tr>
<td>then the nice brother the older one went n asked his dad for a ladder he got a ladder</td>
<td>depicted agents are helping each other.</td>
</tr>
<tr>
<td>chick held the ladder for him went up got the kite[…]]”</td>
<td></td>
</tr>
<tr>
<td><em>Student 7</em>- “[…] so all these people at the beach were throwing bottles eating fried</td>
<td>Despite not connecting the agents to create a story,</td>
</tr>
<tr>
<td>chicken dropping cola on the ground are breakin’ the rules […]”</td>
<td>Student 7 has provided an evaluation of the various</td>
</tr>
<tr>
<td></td>
<td>wrong doings of the people in the picture, which is</td>
</tr>
<tr>
<td></td>
<td>anti-social in its denigration of them.</td>
</tr>
<tr>
<td><em>Student 8</em>- “[…]car comes in and flattens it and I looked over at my friend Cody and</td>
<td>Here Student 8 suggests that he would (anti-socially)</td>
</tr>
<tr>
<td>was like well we can’t play ball today man thanks to you and makin’ fun of him stuff</td>
<td>make fun of his friend because of their collective</td>
</tr>
<tr>
<td>but I’d say Cody learned his lesson […]”</td>
<td>misfortune of losing a basketball to being run over</td>
</tr>
<tr>
<td></td>
<td>by a car.</td>
</tr>
</tbody>
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Figure 4.6. Examples of Comparison Group participants’ agent connections analysis.

Student 1’s first story connected the agents but the connections he made were not definitively pro-social or anti-social. In his second story, he again connected all of the agents but also included the pro-social qualities of shared decision making and adult care for physical injury to a child. His third story failed to connect all the agents and contained anti-social blame-oriented language, though he also suggested pro-
social care responses by two agents to an injured agent. Student 1’s cartoon for his third story arguably connected all the agents and did so in a relatively pro-social manner while excluding the blame-oriented language that existed in his oral telling of the story.

Student 2 struggled to connect the agents in the majority of his stories and had one instance of an adult agent apparently putting a younger agent at risk of harm. However, his samples also included care responses by agents to physical injuries that were suffered by other agents. Student 3 similarly failed to connect the agents in the majority of her stories. In the only story where she actually connected all of the depicted agents her language function for the story was too restricted to provide definitive connections pro-social or anti-social connections among them. In another story, while not connecting the agents, she did create a verbal list of various wrongs the agents were engaging in. Student 4 also failed to make connections among the agents in the majority of his stories and while his first story offered some semblance of pro-social group play his second story contained anti-social blame-oriented language.

While two members of the Comparison group were able to make connections among all of the agents in their stories, none made consistently pro-social connections among all of the agents. Student 5 only connected the agents in half of his stories. His first story included parents ignoring a child’s emotional wellbeing, his second an anti-social description of an agent depicted in the picture the student chose, and his third featured anti-social blame-oriented language. Only in his final story did Student
5 make exclusively pro-social connections among agents. In contrast Student 6 was able to connect all of the agents for each of his stories and in two of those stories he made pro-social connections among agents whereby some of the depicted agents helped other depicted agents. However, one of Student 6’s stories featured an agent causing physical harm to another agent; and, Student 6 was the only student in the study to tell a story with physical violence. While Student 7 refrained from such instances of physical harm, and successfully connected agents in two of her stories, both the third story she told and the story she cartooned exhibited anti-social overtones related to alleged rule breaking. Both her final story and her cartoon also showed failure to connect all of the agents in the picture.

Student 8 was the other Comparison Group member who was able to connect all the agents in each of his stories. However he also failed to create any story with consistently pro-social connections among agents. In one story, he suggests he would publically shame or make fun of his friend. His other two stories included a mix of some agents responding pro-socially to instances of physical harm but also include an instance of an adult choosing self-gratification over helping an injured youth and further include anti-social blame-oriented language. Finally, Student 9 was the only member of either group to have consistently anti-social themes through each story. This even happened in stories where he didn’t actually connect the agents in the stories, but rather provided a listing of their various wrongdoings. He also employed
anti-social name-calling and provided an unsolicited negative critique of the scene depicted in the APRICOT I picture he chose.

Overall, the samples from the students’ stories for the APRICOT I and APRICOT II pictures provided multiple opportunities to gauge the students’ development of pro-social or anti-social concepts. These samples also provided the researcher with an opportunity to determine whether students made connections among the multiple agents depicted in each picture. Findings from the samples indicated that none of the students made consistently pro-social connections among all depicted agents and in addition some of the students in the study made anti-social comments about depicted agents.

**Research Question 3**

When cartooning to visually represent a participant’s understanding of possible moral transgressions, does the participant’s drawing and writing show a social, cognitive, and/or a language gap between what the participant draws and writes and what the participant tells about the concepts?

**Group Data for the Cartooning Task**

If the subjects are visual thinkers then their cartooning should show their thinking. Such cartooning further gives visual thinkers the opportunity to organize their ideas and provides them a maximal opportunity for writing their story to communicate their ideas. To answer Research Question 3 the students’ cartoons were examined to reveal if they displayed more complex ideas than they’d talked about,
whether their writing and their drawing matched, and whether their story complexity rose when they were given the opportunity to cartoon. In addition, the grammar and language function of their writing was examined. The results are in Table 4.5, below.
Table 4.5

*Findings for students’ cartooning of a story based on an APRICOT II picture*

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<th>Core Group</th>
<th>Comparison Group</th>
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<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Write or Draw first?^a</td>
<td>Write</td>
<td>Draw</td>
</tr>
<tr>
<td>More complex ideas?^b</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Writing matches drawing?^c</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Writing and drawing match oral story?^d</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Higher story complexity?^e</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Grammar level^f</td>
<td>Rest</td>
<td>Rest</td>
</tr>
<tr>
<td>Functional level^g</td>
<td>PL</td>
<td>PL</td>
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While some of the students sampled did use complete sentences in their writing, none had consistently appropriate tense modulation. Furthermore, none had stories that exceeded the pre-language level of function. The process of cartooning should’ve allowed the students, all of whom were earlier found to use visual metacognition, to best organize, represent, and share their thinking.
Individual Data for the Cartooning Task

One spring day this family's spending their time out in the sun cuz it's sunny and nice out and their mom Kathy's getting some work done and then the big brother Jeff and the lil brother Stephen are just playing around in the yard and his mom's watering the garden and everything makin' sure the yards lookin' nice and little brother Stephen he's playing baseball by hisself playing catch and everything and his old his older brother Jeff was trying to paint the window seal on the window on the ladder and nobody's paying attention to him so he fell over and fell off the ladder and spilt the paint everywhere and hurt his knee so his brother n mom came rushin' over to see if he was ok and help him up and clean up the mess.

*Figure 4.7. Student 1's cartooned story for an APRICOT II picture and related transcript.*
Student 1 was the only student who chose to first write his ideas and then draw the pictures to go with those ideas. Overall, his cartooned ideas did not present significantly greater complexity, nor did his story itself rise in complexity, compared to the story he told orally. Also, his writing did not fully match his cartooning for example in many instances he left out arrows that might indicate the movements he wrote about. Figure 4.7.5 shows such arrows, Figure 4.7.4 does not. While in some instances his writing showed complete sentences, in other instances it was unclear or used unconventional words and spellings. His overall language function did not rise above the Pre-Language level. This is because his written story failed to contain the expected extension, expansion, and modulation of semantic ideas. Relatedly, he wasn’t able to use his written language to consistently connect his ideas across his story. This means that even when given the opportunity to utilize tools that might help him organize and expand on his ideas he could not successfully use them to do so nor could he fully represent the concepts he discussed in his orally told story for the same picture.
Well looks like what I see here is m-mom n two children playin an one of them hurt themself fell over on his bike er something cause his bike is there and this guy like dropped his glove and his mitt er his glove and his ball n bat ta run over ta like help him n she’s like watering plants so she’s bout to drop that n run over there too probably doesn’t look like very safe situation

Figure 4.8. Student 2’s cartooned story for an APRICOT II picture and related transcript.

Student 2’s cartooned story did not provide greater complexity of ideas or story development than was provided in his orally told story for the same APRICOT II picture. For example, he provided no explanation for an agent’s fall or for what the other agents were doing prior to that fall. He further wrote that after the fallen agent recovered the agents continued to \textit{play} but there’s not semantic specificity regarding
what this *play* entailed (Figure 4.8.4). Generally his story lacked the expansion, extension, and modulation needed to provide concrete or formal level concepts regarding the agents and their actions. As indicated by his first frame, among others, his writing failed to match the pictures he drew. As such, his drawing and writing didn’t match his orally told story. His writing showed restricted grammar, meaning the reader had to take on more than a shared level of understanding and instead had to interpret the gaps in his story. Furthermore, the ideas in his writing were not connected as he didn’t utilize tense changes to relate events over time. The overall language function of his writing was pre-language level.
So I see it this looks like somewhat of a friendly neighborhood um they have a ramp in the middle of the side of the street fer kids uh who like to uh just be a little bit more living off the edge than others and it seems that these two were hangin out an uh goin for a ride and they were this one in particular went to go take a jump and uh fell or hurt himself or just his landing was just not too good for him and uh looks like he looks a little concerned got off his board and seems to be observing the situation and thinking that something might not be right and this is uh this is Bob who came to the rescue an he’s just making sure that these kids aren’t um doing nothin they shouldn’t be and maybe callin parents or an ambulance or whatever they’re needing assistance on at the time.

Figure 4.9. Student 3’s cartooned story for an APRICOT II picture and related transcript.

Student 3’s cartooned story did not feature more complex ideas nor a more complex storyline than her orally told story for the same APRICOT II picture.
Additionally, her writing did not match her drawing and her drawing did not match the story she told orally. For example, in her orally told story she identifies one agent as Bob and suggests that Bob came to the rescue however her writing for her cartoon states that he pulled up to see what was going on (Figure 4.9.6). However, in her drawing for the event of his arrival she provided no motion lines to indicate that he had just arrived at the scene. In addition, the grammar of her writing was restricted, meaning that the listener had to take responsibility for interpreting her intention and her writing had multiple unconventional forms (i.e. they are think and one body takes the board). Her language function was at the pre-language level.

Figure 4.10. Student 4’s cartooned story for an APRICOT II picture and related transcript.
Student 4’s cartooned did not provide more complex ideas nor a more complex storyline than his orally told story for the same APRICOT II picture. Additionally, his cartooning and writing didn’t match and both failed to match the story he told orally prior to the cartooning. Examples of this include his inclusion of three agents in his drawing though his oral story only discussed two; and, that he didn’t draw motion lines clearly indicating the fall of any of the agents though he wrote that one had fallen (Figure 4.10.1). His writing showed restricted grammar and his language function was at the pre-language level, lacking the expansion, extension, and modulation necessary for him to create a complete story connecting all of the agents in the picture.
Now Jimmy over here has tried to jump over his fence on his bicycle and he has failed and he has caused to break his knee and his brother Jonathan rushes over and while his mother is gardening and watering all the plants she is shocked to see her son in agony an looks like he knocked over some paint wait someone is painting the house maybe he fell off there’s a lot of variables in this picture but yeah I'm gonna say Jimmy broke his knee also why a - there’s too many things goin on in this picture like how how is he why is he have the bat glove and ball cuz you can't use all those at the same time I mean I guess you could but but also like man this pictures got a lot of stuff goin cuz uh it kinda insinuates that he’s like fallen off his bike or maybe he’s fallen offa here but if he fell off his bike then what’s up with the this stuff and if he fell off this stuff what’s up with the bike hmm someone’s messy

Figure 4.11. Student 5’s cartooned story for an APRICOT II picture and related transcript.
The members of the Comparison Group didn’t fare differently from their Core Group peers on the cartooning task. Student 5, the first member of the Comparison Group, provided a cartooned story that didn’t feature more complex ideas or increased complexity in story line than his verbally told story for the same APRICOT II picture. His writing and drawing didn’t match and accordingly they didn’t match his previously told story for the same picture. For example, in Figure 4.11.1 he suggests that an agent has fallen while trying to jump over a fence on a bicycle but he includes neither the bicycle nor the fence. In addition, nowhere in his cartooned story are discussions of the baseball equipment, ladder, nor the spilled paint that were all mentioned in his orally told story. Finally, while his sentences were more or less complete his grammar was not at the adult level and his language function was still at the pre-language level lacking maximal extension, expansion, and modulation and additionally failing to provide a complete beginning, middle, and end for his story.
Alright two boys were hangin’ out in the neighborhood playin’ on these skateboards one of them borrowed the ramp from their older brother so they could uh do some tricks off of it and then the one kid fell off his skateboard got hurt and then there was concerned dude on a motorcycle that stopped and asked em how they were doin’ and of course the kid sucked it up and said he was fine and the dude didn’t believe him so he wen over to uh Jim Bob’s house here told his mom and uh she’s comin’ to save ‘im now.

*Figure 4.12.* Student 6’s cartooned story for an APRICOT II picture and related transcript.

Student 6’s cartooned story for an APRICOT II picture didn’t offer any greater complexity of ideas or of storyline than his orally told story for the same picture. His writing didn’t match his drawing and the cartooning didn’t match the story he’d told earlier for the picture, either. For example, his drawing in Figure 4.12.1 provides no obvious support for his suggestion in the writing for that figure that it was a nice day. In his writing for Figure 4.12.3 he wrote that an agent had arrived to help the boys, but provided neither lines indicating motion nor a description of the help to be rendered. In his orally told story he described the motorcyclist as not believing the fallen boys’ claim regarding being uninjured but such does not appear in his drawing or writing. Additionally, his writing showed restricted grammar and his language function was at
the pre-language level as the reader was left to guess the meaning of much of his cartoon.

Yeah. Um so this one everyone’s smoking and they’re not really like they can smoke but they’re putting their cigarettes out on the ground and it says please don’t litter so all these people at the beach were throwing bottles eating fried chicken dropping cola on the ground are breakin’ the rules and but there doesn’t seem to be anyone nearby to catch them so they’re fine for now

*Figure 4.13.* Student 7’s cartooned story for an APRICOT II picture and related transcript.

Student 7’s cartooned story for an APRICOT II picture didn’t show greater complexity of ideas or greater complexity in story development when compared to her
orally told story for the same picture. Rather, her cartooned story, like the cartoon of 
Student 9 who also cartooned a story for the same picture, appeared to be a list of 
things she saw in the picture that she thought the agents were doing wrong. 
Furthermore, her writing didn’t fully match her drawing and as such her cartooned 
story didn’t match her orally told story. In her orally told story for the picture she 
began by discussing agents who were smoking, however her cartooned story fails to 
include smoking by any of the agents she drew or wrote about. In addition, she failed 
to include motion lines in her drawing that would represent the actions she wrote 
about the agents engaging in. For example, Figure 4.13.4 might’ve been a place 
where such lines were appropriate to include but Student 7 did not do so. Her writing 
in the story showed restricted grammar as Student 7 failed to modulate verb tense and 
pre-language level function as it failed to provide the necessary expansion, extension, 
and modulation to fully connect the agents and tell a complete story with a beginning, 
middle, and end.
Um let’s see Fred and his little brother Bobby were in the backyard playin’ around his mom their mom was a waterin’ the plants n bushes and uh Fred got his bike started ridin’ around and uh Bobby was playing baseball playin catch with either the mom while she put down the hose maybe spent a little time with him and uh Fred apparently looks like crashed on his bike ran into the um I don’t I don’t know looks like Fred uh fell off his bike uh maybe the bike hit this little um pump right here n the bike stopped he went he went swerve n Fred probably fell off the bike and landed on his leg wrong n the bike the uh his leg probably hit the ladder which there was paint on top of like and the paint must’ve fell off spilled everywhere mother looks concerned Bobby looks like oh gee whiz starts flipping out mom probably dropped the hose to go check up on Fred and Bobby’s probably concerned as well and uh I guess lesson learned from this is uh don’t ride your bike in the back yard or don’t leave a bike out but… of course the other story would probably be the other way to look at it he had the bike layin’ down and he tripped over it but I don’t know

Figure 4.14. Student 8’s cartooned story for an APRICOT II picture and related transcript.

Student 8’s cartooned story for an APRICOT II picture offered neither greater complexity with regard to the ideas presented nor with regard to the storyline shared. The writing and drawing in the cartoon didn’t match, nor did the cartoon match the story he had previously told orally for the same picture. For instance, in Figure 4.14.1 he drew an agent with a bike and another with a hose, but simply wrote that they were
messing around and watching, respectively. Further, in Figure 4.14.3 he depicted agents inquiring as to the wellbeing of another agent but those agents aren’t mentioned in his writing below that panel. His orally told story suggested that there was paint spilled but such doesn’t appear in his writing or drawing. His writing provided complete sentences but failed to show appropriate modulation of tense. Moreover, the language function of his cartooned story was at the pre-language level and didn’t feature a complete story with beginning, middle, and end as well as maximal expansion, extension, and modulation.
Uh this picture is pretty self-explanatory um so you see all these people on the beach and the first thing that comes to mind is this ah garbage can back here that says please don’t litter but there’s like litter everywhere for one thing you have like this guy with his chicken-fry his fried chicken for one thing also you shouldn’t eat fried chicken before you’re gonna go swimming cuz that probably wouldn’t make your stomach feel very good but uh you see that ya know he might leave his like ya know the bones all over the ground or whatever or just the whole entire bucket itself you see a can right here some other stuff right here ah this guy’s cigarettes are just ya know he’s just stuffing them into the ground instead of actually throwing them away some chips everywhere that ya know are probably gonna get left behind and you also notice that they were even lazy enough like they got to the garbage can but they didn’t even throw it in the garbage and just right here you have this lady smoking over there and she’s probably gonna like ya know leave it on the ground too and then you have this guy over here who’s throwing something into the ocean like a bottle of some sort um yeah you got some shoes right here and everything so it just doesn’t seem like a good idea because they’re polluting the beach ya know that makes everyone else who’s probably also on the beach trying to enjoy the beach have a less fun time because ya know you gettin all dirty and stuff so yah

*Figure 4.15. Student 9’s cartooned story for an APRICOT II picture and related transcript.*
Student 9’s cartooned story for an APRICOT II picture did not offer greater complexity of ideas or storyline as compared to the story he told orally about the same picture prior to his cartooning. Instead of a complete story, his panels appeared to represent separate ideas that were only vaguely connected if connected at all. Additionally, the writing and drawing in his cartoon did not match each other, nor did his cartooning match his previously told story for the same picture. His cartooned story began with two friends; however these two friends never appeared in his orally told story for the same picture. With regard to his lack of story development, after introducing the reader to these two friends in Figure 4.15.1, Student 9’s cartoon included no further mention of them. With regard to the matching of his writing to his drawing, Figure 4.15.3 suggests that people at the beach are trying to have fun but his drawing doesn’t depict any activities the agents may be engaging in that could be meaningfully represent fun. While Student 9 wrote in complete sentences, his writing lacked the expected tense modulation and the reader had to take on more than a shared responsibility for understanding his cartoon. His language function was at the pre-language level lacking the maximal extension, expansion, and modulation to create a complete story for the picture. Instead he, like Student 7 who also chose this picture, seemed to provide mostly a listing of wrongdoings by the various agents as opposed to a story with a beginning, middle, and end.

Overall, the samples from the students’ cartooning offered multiple opportunities to examine the level to which students were able to utilize cartooning to
explain, or further develop, the concepts they discussed in their orally told stories for the same pictures. Findings from the samples indicated that the students showed a gap between what they were able to draw and write about versus what they told. This suggests that their oral language does not fully match the ideas they can represent using visual methods like cartooning to show their thinking.

**Research Question 4**

Will participants show a difference in language function when the task requires higher and/or lower levels of cognition?

To answer this question the students’ language function across the varying tasks in the study was compared. Student responses for the APRICOT I task provided the sample at the pre-operational level. Student responses for the APRICOT II tasks provided the samples for the concrete level. The students’ answers to the verbal prompt provided the language sample for the formal level task. If students had the language development typically expected for youth their ages they should’ve shown maximal language function across all language tasks in the study. In fact, all students showed pre-language levels of language function across all tasks as indicated in Table 4.6.
Table 4.6

*Findings for students’ overall level of language function across pre-operational, concrete, and formal cognitive level tasks*

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<th>Core Group</th>
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<th>Comparison Group</th>
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<td>Formal(^a)</td>
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<td>Concrete(^c)</td>
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*Notes.* \(^a\)The formal level task was the verbal prompt.  \(^b\)The pre-operational level task was story-telling for an APRICOT I picture.  \(^c\)The Concrete task was story telling for two APRICOT II pictures.  PL= Pre-Language, L= Language, Li= Linguistic.

While students in the Comparison Group often showed the acquisition of more language structures than their Core Group peers, none of the students in the sample showed language function above the pre-language level. Based on these findings, the researcher theorized that Student 10, the Confirmation Case, would show both pre-language levels of language function across all task and limited acquisition of language structures. And, because of his behavior being and extraordinarily poor performance academically, he should likely show a lack of consistently pro-social connections among agents.
**Confirmation Case**

Student 10, the Confirmation Case was expected to show pre-language function across all tasks as well as limited acquisition of language structures like the students in the Core Group. Findings from Student 10’s language sampling confirmed that he had pre-language function and limited acquisition of language structure. In response to the verbal prompt he required two modifications of the question regarding what he does on a *typical day*. The first modification, suggested that he could describe what he does on a school day, the second that he should describe what he does during school. To that modified prompt he offered two arguments, indicated pre-language function, and also indicated visual metacognition like the others in the study.

For the task of telling a story based on an APRICOT I picture, Student 10 provided a story that lacked an ending and had limited extension and expansion. His story for the first APRICOT II picture he chose similarly had limited extension and expansion. The second story for an APRICOT II picture that Student 10 told had limited extension and expansion lacked an ending. His stories for the three pictures featured a mix of anti-social blame-oriented language, pro-social care for physical injury to a depicted agent, and a complete lack of connections amongst agents respectively. Student 10’s cartooning of his story for the second APRICOT II picture he chose included drawing and writing that did not match each other nor did his story or ideas increase in complexity as compared to his orally told story for the same picture. His cartooning further failed to match the story he told orally. For example,
his orally told story included specific examples of instances of littering people were engaged in but his cartooning did not. Further, his drawing contains no clear indicators of people *trashing the place*, though he wrote that such was occurring (Figure 4.16.1). Finally, while his writing was in complete sentences it lacked the appropriate tense modulation, the overall language function of his writing was at the pre-language level. His cartoon is shown in figure 4.16 below. His performance across all of the tasks, despite their varying levels, indicated pre-language levels of language function, at best, for each task.

Um this is a beach and there’s a lot of pollution on it so they placed trash cans all around it to prevent littering so people throw away their trash and nobody’s using it they’re um basically yeah nobody nobodies usin’ it nobody cares they’re just littering anyways I don’t know yeah this guy’s got a bucket of fried chicken this guy’s throwin’ stuff into the water it doesn’t really look like a rock it looks like something else a shoe floating uh … uh… that’s it yeah

*Figure 4.16.* Student 10’s cartooned story for an APRICOT II picture and related transcript.
Summary

This analysis found pre-language levels of language function among a group of four behaviorally challenged students at an alternative school, these students comprised the Core Group of the study. The study further found the same pre-language function level for each member of a Comparison Group comprised of five of their more highly achieving peers at the same school. An additional student, the Confirmation Case, whose behavior matched that of the Core Group was also found to have pre-language function level. These findings were true across tasks that required pre-operational, concrete, and formal levels of cognition respectively. Because students in the study were expected to be found to use visual metacognition, they were additionally given the opportunity to draw out their ideas to maximize their ability to organize and relate their concepts. However, this opportunity did not result in increased complexity of their ideas, the complexity of the stories they told for pictures they chose, nor in higher levels of language function. Though all of the students in the study were found to have pre-language function levels, the members of the Comparison Group, a group selected for their relatively strong academic performance at the alternative school, were found to have more acquired language structures. The members of the Comparison Group though were also more likely to have made anti-social connections among the agents in their stories and some of their samples showed signs of significant and unresolved social-emotional challenges.
Taken as a whole, these findings lend support to the idea that students in alternative education settings may have functional language deficits that don’t allow them to successfully participate in the larger social context of mainstream schools. Furthermore, these findings also support the suggestion derived from the literature that the learning theories used by many schools, including the one in this study, that focus on instructing behavior as separate from social cognition and cognition as a product of behavior fail to successfully promote the development of pro-social concepts as well as cognitive development overall. The next chapter, Chapter Five, will include discussion regarding the importance of these findings, their disposition with regard to the existing literature, and possible future avenues for research in light of these findings.
Chapter 5: Results

Introduction

This study investigated the possibility that moral development is a product of functional language acquisition. To do so, the researcher devised a two part investigation. The first part was a multidisciplinary review of literature which found a wide range of resources supporting the hypothesis that there may be a causal link between functional language acquisition within a culture and moral development within that culture. The second part of the study was an application the researcher devised to test that hypothesis. This application component of the study investigated the language function of a group of behaviorally challenged high school aged students as well as a group of their more successful peers at a well-respected alternative school. A final student whose behavior profile matched that of the behaviorally challenged students was also included in the study to provide confirmation of the study findings.

Summary of Findings

Overall the findings from the analysis of the language samples of the students in the study showed that the high achieving students in the Comparison Group and the lower achieving behaviorally challenged students of the Core Group all had pre-language function levels. So did the student who served as the Confirmation Case. Such pre-language levels are significantly below what would be expected for typically developing youth at the ages of those in this study. The Comparison Group students were found to be more likely to utilize anti-social concepts in their connections among
agents in their language samples. Additionally, despite being given the opportunity to
cartoon out their ideas, a strategy that supports the visual metacognitive thinking
system of the youth in study, none were able to effectively use the opportunity to raise
their thinking regarding a task involving making social connections among agents at
the concrete cognitive level.

In order to provide study participants with the greatest chance of success at the
tasks in the study, materials were used that reflected a variety of cognitive levels.
Students were first given a verbal prompt which operates at the formal level of
cognition. None of the students in the study were able to answer the verbal prompt
with the level of language function expected for typically developing youths of their
age. This task essentially assessed their ability to fit in with the larger English
auditory culture as society and educational institutions would likely expect of people
their age. In some cases, the cognitive level of the verbal prompt was lowered to
allow students to complete the task; but, even in these cases, students still showed pre-
language function. Following the verbal prompt students were asked to tell a story for
a picture that they selected from a series of pictures that are pre-operational in nature.
These pictures provide the complete setting and context for all of the agents depicted
and they are provided within a single horizontal plane in the picture. Student language
samples from that task again revealed significant deficits in functional language
acquisition among all students in the study, suggesting that even when a great amount
of information is provided for them they still may lack the language and thinking
needed to complete the task.

After the task at the pre-operational level the students were also asked to
provide language samples via a story-telling exercise utilizing two different pictures
that are at the concrete cognitive level. These require the participants to make
connections among the agents in the picture whose presence and actions in the picture
are not readily provided, nor are the agents in a single plane. Because the pictures
require students to make connections among the agents they identify in the picture and
allows them the opportunity to utilize their own social development, this task provided
an opportunity to assess whether students made anti-social or pro-social connections
among agents. To control for interest, students were asked to choose two different
pictures from the set of concrete level pictures provided by the researcher. As
expected based on their performance on the tasks previous to the concrete picture task,
student language function for these tasks was also below what would be expected for
typically developing youths their ages. Providing students the opportunity to cartoon
out their stories for the same concrete level pictures provided no advancements in the
complexity of ideas provided nor in the stories the students produced. In the cases of
anti-social conceptions being expressed by students, the researcher intends to revisit
the images with the study participants and cartoon out pro-social concepts for the
actors depicted in the pictures after the conclusion of the study.
Conclusions

The findings from the application component of this study were in agreement with the model for moral development produced by the review of literature. The high achieving and low-achieving students of the alternative school, all of whom showed functional language deficits, have also shown deficits in the pro-social concept acquisition necessary to fully and successfully participate in the social context of the larger mainstream educational culture. Moreover, those students with fewer acquired language structures were most often Core Group members, chosen for their semi-regular failure to adhere even to the arguably less onerous social conventions of the alternative school they attend. Meanwhile, the more successful students in the Comparison Group frequently reflected a lack of pro-social conceptual development which could reasonably be expected as a product of the school’s behaviorism based practices for behavioral instruction which treat behavior as separate from acquired concepts. Such practices ignore or misconstrue the nature of pro-social conceptual development as they reduce pro-social behavior to a series of decontextualized actions to be externally rewarded or punished. Thus even relatively well-behaved students like those in the Comparison Group may be deprived of the functional language necessary to promote their underlying pro-social moral development. Remarkably, in spite of these apparent deficits in acquiring pro-social moral concepts, the Comparison Group students are sometimes publicly praised by school staff as examples of high-achieving model members of the school community. Additionally, the school’s
behaviorist practices may not afford students opportunities to gain the language function needed to manage their various social-emotional needs. A fault perhaps best evidenced by the teacher account regarding Student 7 of the Comparison Group who a teacher suggested was a great contributor to class discussion when that student was emotionally able to be.

Further, tertiary findings from student language samples appeared to concur with a number of assertions made by others found during the review of literature. Among such may be that behavioral disciplinary referrals, like other school disciplinary measures can be arbitrary in their assignment and thus their absence in a student’s record may be a poor indicator of acquisition of pro-social moral concepts. For example, student language samples suggested that while some of the students in the Core Group regularly received disciplinary referrals for cell phone use during class, members of the Comparison Group confessed to regularly using their phones during class without any such consequences. Moreover, it may be that grades, in addition to being of relative disutility in their ability to clearly communicate student success (Crooks, 1933; Kohn, 1999) and potentially penalizing of students from particular socio-economic or racial backgrounds (Fuligni, 2001), are not useful gauges of students’ language function or their acquisition of pro-social concepts. Note that the students displaying the most anti-social concepts in the study were those in the relatively highly-achieving Comparison Group, some of whom advocated verbal abuse and normalized anti-social action in families. Furthermore, one of the Comparison
Group members, Student 9, made anti-social comments and/or negative evaluations of agents in every single story he provided.

As the researcher considered the data regarding anti-social concept acquisition among the Comparison Group members, one of Student 8’s stories particularly stuck out. That story was one suggesting that Student 8 himself would make fun of someone to cause them to learn a lesson. Student 8’s nine year stint in public and alternative education settings appears to have imbued him with, or at least not disabused him of, the notion that verbal abuse is part of learning. While initially surprising to the researcher, such a belief does seem to be a potentially expected outcome of participation in an education system where bullying of students by school staff is widespread (Whitted & Dupper, 2008). Further, such bullying even extends to the victimizing of teachers by school administrators (Blase & Blase, 2002). Perhaps such a belief as espoused by Student 8, that disparagement has a place in the learning process, is an example of one of the rational myths about learning that contemporary education is rife with (Jones, K. D., 2013). Such myths have been argued to perpetuate the isomorphic (Jones, K. D., 2013) and piecemeal type of changes that have failed to substantially improve educational practices as they ignore fundamental components of contemporary education that are based on falsehoods (Combs, 1979). Perhaps among such falsehoods is that education must continue in its current paradigm to ensure student success in learning (Hammond, 2015; Neill, 1964).
With regard to other findings of the research, that all of the students in the sample utilize a visual metacognition system is unsurprising given the findings that most people now use such a system (Zeman, Dewar, & Della Sala, 2015) and some findings suggest high rates of auditory processing impairments among students from low-income backgrounds (Kraus & Anderson, 2015; Skoe, Krizman, & Kraus, 2013). Such also concurs with work suggesting that education needs to provide dramatically more visual-spatial information and not rely on auditory and imitative methods of instruction (Alt & Guttmann, 2009; Arwood, 2011).

In terms of overall placement within the literature, this work corresponds favorably with the paradigm shifting (Dixon, 2003) work of Bowlby (1950) who argued against simply labeling children with poor behavior as bad and who further advised against waiting until such children ended up in prison to investigate potential sources of anti-social behavior. This study is also in line with prior publications suggesting language problems and behavioral difficulties may co-occur (American Psychiatric Association, 2013; Carpenter & Drabick, 2011). Such findings appear to contrast with contemporary educational practices found in the review of literature like PBIS and other rewards based systems that try to address behavior as a uniquely separate domain. For educators, addressing the development of pro-social moral behavior and language acquisition as connected would represent a paradigmatic shift not unlike the shifts other fields have made to step away from the reward and punishment paradigm (McLeod, 2013).
This study’s findings suggest that contemporary writers on moral education like Narvaez (2014), who have followed moral theorists like Kohlberg (Rosenzweig, 1980) in their reliance on an outmoded step-based or incremental parts-to-whole model of learning and the brain’s function in such, should reconsider that view. While such behaviorist learning models may be widely used they have also come under fire from not only critics of traditional educational practices like Kohn, but also from professionals in industry who argue that such methods are actually harmful to learning and build resistance among youth to appreciation of the intrinsic joy of learning (Lockhart, 2009). Such resistance may be particularly frequent amongst students at alternative schools (Lundstrom & Oygard, 2015) which may be particularly troublesome for those like the researcher who seek to maximize the possibilities for learning and moral development for such marginalized and at-risk students.

A new paradigm based on this and other research that encourages scholastic attention to functional language acquisition for pro-social moral development would be in keeping with the suggestion that given the amount of time young people spend in school, schools have an obligation to instruct for their moral development (Atkins, Hart, & Donnelly, 2004). To accomplish this, Atkins, Hart and Donnelly, (2004) argued that teachers need time for extended individual interaction with students and that school structures and practices themselves need to be ethically driven in nature. They especially argued for such ethically driven structures and practices in instances where students might not have any other moral direction from adults in their lives.
That argument that school structures can support ethical and moral development was further supported by Crittenden (1990) and may require dramatic changes in school structures given that most if not all were not designed with such moral (and linguistic) development in mind (Labaree, 1997). In addition to structures and interaction, Atkins, Hart, and Donnelly (2004) suggested authentic statements of appreciation, which differ from praise, in response to pro-social action by students.

Creating space in schools for positive pro-social interaction among teachers and students might additionally be seen as working towards a reversal of the decline in conversation and conversational spaces observed by both Miller (2008) and Heath (2010). Such may only be of success though if teachers and others in education are aware of how language is acquired, and that it is acquired, rather than viewing language acquisition and other learning as a process of step-based imitation. While linguists like Lenneberg (1970) have written on language acquisition, and educators like Arwood (2011) have as well, too many still value products over process. Such valuation of products over process may be while this study’s findings indicate all of the students studied have language disorders as defined by the American Speech-Language Hearing Association (American Speech-Language-Hearing Association, 1993) but the school provides none of the study’s participants services for such.

With regard to additional methods that might be utilized to support the moral development of young people, Arwood’s work, as well as that of others (Horne, Powell, Hummel, & Holyoak, 2015), has observed that the use of stories and pictures
can be instrumental in assisting pro-social concept acquisition. However, educators should also be cautioned that stories shared without regard for learner’s language abilities and familiarity with subject matter can be interpreted at a variety of levels (Arwood, 2011; Leeming & Sader, 1997).

The consequences of not furthering the pursuance of language acquisition measures in education environments, especially for students like those in this study who lack all showed dramatic functional language deficits, are grim. Limited language acquisition has been historically linked to lower social standing (Zipes, 2012) and the lower abstract problem-solving abilities linked to less formal language development have been implicated in heightened propensity for committing criminal offenses (Mottus, Guljajev, Allik, Laidra, & Pullman, 2012). Perhaps contributing to that latter problem is the observation from the legal field that for laws to be instructive for behavior one needs to be able to understand them (Morse, 2011). That supposition, that for guidelines to be instructive they need to be understood by those whom they’re meant to instruct, should also be heeded by educators and educational administrators who utilize written codes of conduct, or handbooks, like the school in this study does. These handbooks may often contain very formal level language despite the fact that young people and adults may read and understand words differently, a finding supported by contemporary neuroscience (Dekker, Mareschal, Johnson, & Sereno, 2014).
Recommendations for Future Research

Future research related to the findings of this dissertation could, and should, be conducted in a number of areas. The beliefs of educators, and particularly alternative school educators, about language and language acquisition as well as methods they might utilize to improve the functional language acquisition of their charges should be studied. Further, barriers to the implementation of strategies designed to increase pro-social language acquisition might also be of merit for investigation so that they can be identified and remedied. Additionally, while the students in this study, as alternative school students, represent a group that has fallen outside of the conventions for mainstream social participation further research might be done into the language function of others who have been excluded from participation in the mainstream society. This is particularly true for those excluded from mainstream society for demonstrating extreme anti-social behavior.

During the course of the review of literature the researcher also discovered a number of suggestions from various authors that suggested that anti-social concepts can exist among organizations and the systems that those organizations utilize. The extent to which organizational practice and language used in that practice can support pro-social or anti-social development may also be an area for further research. To some extent such a review might include investigating the historical purposes for the creation of such structures. Such was quite revealing to the researcher in the course of this study where he found alternative schools were created as a tool for use to get
children off the streets and then later used as places to send students who failed to thrive in the mainstream educational model. In this way, such schools were suggested to be acting as a sort of pressure release for a system that clearly does not work for all students, which the researcher noted with surprise does not seem to limit alternative schools’ isomorphic mimicry of many mainstream school practices.

**Recommendations for Practice**

Given the results of this study, the researcher strongly recommends that educators and educational professionals revisit their practices. This recommendation covers not only disciplinary efforts aimed at creating orderly and pro-social environments that facilitate learning but also includes review of instructional and professional development practices. Methodologies, despite their wide use and increasing adoption, like PBIS and other behaviorism based programs and practices, should be rejected. Literature suggests that such rewards based practices contribute to increases in aggression and may impede or even discourage the adoption of pro-social moral concepts by those who they’re meant to instruct. Furthermore, evidence from literature on language acquisition suggests that such practices do not actually facilitate the functional language acquisition that this study found to be lacking among all of the youth involved.

To the extent that all of the students in this study were found to use visual metacognition educators and educational professionals should take steps to make their instructional materials and language more visual in nature especially when working
with young people who lack maximal functional language development. To do otherwise is to unnecessarily and unfairly restrict those young people’s access to the very content and concepts they’re being expected to learn. As experts in the field including Arwood (2011) and Wendt (1956) have noted, the use of visuals for education may be poorly understood by educators. Visuals are not all equal. Simply posting written versions of guidelines and expectations is radically insufficient for students who lack the language development to successfully utilize such written forms as such forms utilize words which in English are auditory in nature. As these written instructions frequently make no pictures for the youth to think about and take instruction from, they’re likely to be nearly as inaccessible as the verbal versions of the same instructions.

Similarly, given prior research that suggests elaborate conduct codes have been implemented at educational institutions including the one in this study and not actually prevented or remediated poor behavior within schools, schools should analyze the language levels of the instructions in these codes. Providing students instructions beyond their comprehension does not give them the information they need to have the real choice to conduct themselves in a pro-social manner. As such administrators may need to revise the codes of conduct of their institutions or make addendums to them to allow greater accessibility of content to learners of all language levels. This might be seen as similar to how school districts often provide translations of materials for non-English speakers.
Opportunities to increase the capacity for pro-social action do not end with students, though. While there were many incidences of name-calling and blame-oriented language in the samples from the young people in the study such anti-social concepts are not acquired or perpetuated in a vacuum. During the course of this study the researcher was both witness to and heard from a number of young people and staff alike that students, teachers, and administrators at the school at times utilize such language in their interactions with each other and with students including some of those in both the Core and Comparison groups in this study. Outcomes of such interactions included tearful youth and adults, perpetuation of anti-social behavior and communication amongst youth and adults, and numerous students punching holes in the walls of the school or committing other acts of (self) harm. If young people are to acquire pro-social language and concepts the adults they interact with in schools must also utilize and internalize those concepts in their interactions with each other and with the youth. Bullying, coercion, and manipulation of staff and students alike only serves to perpetuate the marginalization of both alternative school students and the staff charged with their instruction and care.

Perhaps one way to help facilitate such growth would be for educators and educational professionals to participate in efforts to “de-siloize” their educational practice and organizational structures. The belief that education, schooling, and common practices within such are somehow sacrosanct strikes the researcher as relatively illogical. In light of such drastic changes in society as equal rights for
women and minorities, the invention of the internet and near ubiquity of devices to access it, and neuroscience that can reveal the brain’s networks and function perhaps analysis of potentially anachronistic educational practices is long overdue. One example of such “de-siloization” is this study’s review of literature which went beyond simply the existing research on educational practices for moral development and pro-social behavior and provided a new theory for a mechanism of moral development; that theory’s development would not have been possible had the researcher not gone beyond existing educational literature. During the course of the review of literature the researcher also found evidence that those outside of education had begun to abandon practices common to both mainstream and alternative schools, (including the school site used for this study). This is because those outside of education have found some common contemporary educational practices to be of disutility in their ability to maximize learning. Perhaps if educators and educational professionals looked beyond their own literature more often they might find the same. This might also lead them to not so frequently recycle ideas but rather cause them to innovate in systems and practice and become the leaders of learning that youth and families might believe and desire them to be. To do this, however, teachers and educational professionals must accept that schooling and learning are not synonyms and nor are teaching and learning.

If education and those employed in its organizations are to meet what the researcher would view as their moral obligation to take seriously their practices on
behalf of the youth entrusted to them then they necessarily need to look beyond literature from the contemporary mainstream educational paradigm. That view, however, stems from researcher’s belief that learning is not found in copying a product, but rather that learning is the outcome of a process of assignment of meaning and conceptual acquisition and refinement. Thus the researcher realizes that educators and educational professionals looking for one easy trick or method to copy may be disinclined to expend the effort to broaden their own philosophical and disciplinary horizons. In the researcher’s view such would be entirely unfortunate, however as educators and educational professionals are the ones entrusted with the formation of the next generation; and, according to myriad authors cited in this study, schools present the greatest hope many young people have for successful pro-social development. To shirk that moral and professional obligation to take the steps necessary to make actual dramatic paradigm-shifting improvement in education would be, in the view of the researcher, quite unfortunate.
References


Appendix A,

APRICOT I and APRICOT II pictures used

APRICOT I #3 The Kite in the Tree

APRICOT I #12 Playing Basketball
APRICOT I #13 The Barbecue

APRICOT I #25 Catching the Fish
APRICOT II #9 The Fall

APRICOT II #12 Skateboarding Accident
APRICOT II #16 *Fireworks*

APRICOT II #21 *Fireworks*
Appendix B,

Student language sampling transcripts

Transcripts are provided for each student. Bolded sections indicate the start and end of a response to a particular prompt or task. Names and any other identifying information were changed. In some instances the researcher inserted notes, these insertions are marked by parentheses or brackets.

Student 1 Transcript

1- It’s alright

Typical Day

1- What do you mean?

/Typical Day

Modified typical day

1- I dunno just come to school n do what I needa do

/Modified typical day

1- ...I don't know what to say about these… Why’d you get the easiest one?

1- Yeah

1- Cuz they’re obviously related see make a story about brothers but these are different …

1- Alright … So how do you want me explain it

1- Pretty much what you did

1- Alright well..
APRICOT I

1- Well durin the summer this family ah shit I dunno … during the summer there were these two young boys named Chris and ben and they were brothers and they’ve been wanting to go out to a park and have fun and have a picnic for quite a while and so since it was finally summer they got nice weather and so their parents finally got a day off from work so they all went to the park and had a nice picnic and then .. Chris and ben were playing and Chris threw a ball at the table and knocked over the juice for the picnic and then .. yeah .. yeah I dunno anymore

/APRICOT I

1- You should let me tell a story about this one

1- I guess

1- Yeah

1- Cuz skatin?

1- Two?

1- I’m guessing he fell off the ladder right there (points at the picture with the ladder)

1- I guess I’ll do these two

1- Alright I’ll start with this one.

APRICOT II (A)

1- So one day after school, Riley and[This may actually be 1 saying an/] his good friend friend Mark [Riley and Mark are the names of two friends of 1’s who are also known to the researcher] were skating after school and Riley mentioned he just got a
new ramp so Mark and Riley went to his house and they were skating on the street for a while and then he mentioned bringing out the ramp so they decided to bring out the ramp and Mark hasn’t gotten used the ramp yet so he was trying to do better and better and then he tried to get bigger air and fell off the ramp and then uh a passby a guy on a on a motorcycle passin by stopped to help him because he seen that he was injured and wasn’t getting back up…

/APRICOT II (A)

/APRICOT II (B)

1- And then this one … One spring day this familys s-spending their time out in the sun cuz its sunny and nice out and their mom Kathy’s getting some work done and then the big brother Jeff and the lil brother Stephen are just playing around in the yard and his moms watering the garden and everything makin’ sure the yards lookin’ nice and little brother Stephen he’s playing baseball by hisself playing catch and everything and his old his older brother Jeff was trying to paint the windowseal on the window on the ladder and nobody’s paying attention to him so he fell over and fell off the ladder and spilt the paint everywhere and hurt his knee so his brother n mom came rushin’ over to see if he was ok and help him up and clean up the mess

/APRICOT II (B)

1- Ahhh. I have to write it out now?

1- I don’t like drawing at all. I never draw.

1- Never.
1- Phyes

1- I guess I could do it maybe

Student 2 Transcript

2- Ok I guess, just not really more most of my work but I still do it at last minute
(unintelligible) stop doin’ stop doin’ that though it’s goin’ pretty good

2- This quarter

Typical Day

2- Just walk in get my stuff go to class kick it with Bobby tryn stay focused on work

/Typical Day

2- Uh uh that’s heavy

2- Yeah

2- Is this what you do on a daily basis?

2- Alright so the car and basketball one

APRICOT I

2- Well I say Tom, Kevin n [Student 2] playing basketball and Kevin’s dad shows up
runs the basketball over hehe hyeah

/APRICOT I

APRICOT II (A)

2- These two look pretty good hehe uhhhh well these ones they’re kind got this little
girl skateboardin’ and kid just fell on his skateboard it’s not very safe got a motorcycle
I think that he’s gonna like go off the jump (points to motorcycle) hehe and that kid
was just testing it for him (points to kid who fell) ...makes sure the ramps safe… uh ya got learnin’.. um… I’m very bad at story t-makin’ up.

/APRICOT II (A)

APRICOT II (B)

2- Well looks like what I see here is m-mom n two children playin’ an one of them hurt themself fell over on his bike er something cause his bike is there and this guy like dropped his glove and his mitt er his glove and his ball n bat ta run over ta like help him n she’s like watering plants so she’s ‘bout to drop that n run over there too probably doesn’t look like very safe situation

/APRICOT II (B)

2- Absolutely

2- (Student 2 exudes a long sigh)

2- Thank you thank you ..... stick figure…

2- Got little thingy n little thingy sure and that hand and that hand

2- It’s almost made that an A for Aaron

2- Almost made the stick figure an A

2- Mhm

2- Well cuz the kids playing then he’s like showing up to ya know pick up Kevin

2- But nobody knows that the balls going to go under the car

2- And it looks like he might be in a little bit of danger

2- Cuz the cars coming and he’s going out there
2- Hehe yeah

2- What do you mean?

2- He’s gonna fly off of it and kill himself I dunno hehe

(The indented section in italics is a brief sidetrack exchange between the researcher and student 2 regarding conventional and motorized skateboards in traditional and longboard sizes)

2- he’s gonna like

2- same actually

2- yeah that big thing’s (gestures to longboard style skateboard) the only thing I ride now

2- you got both of them still?

2- that’s cool I never even got to try one of those

2- yeah

2- not really right now

2- No problem

2- Absolutely please do

2- Get better at storytelling

2- Have a good day
Student 3 Transcript

Typical Day

3- Hope that uh I can just avoid some-people in particular um probably uh just try to keep my number one focus on my school work and my academics and hope that I'm not falling behind but sometimes that doesn’t happen um so on a typical day I'll just be constantly just striving through all the obstacles that I come to

/Typical Day

3- God damn we need to voice record and some writing
3- Oh man this is just such a fat notebook
3- Kind of intimidating ok
3- It’s alright … … you can read cursive right?
3- My writing sometimes lately has been like half between cursive and half messy
3- Unh
3- Woooow
3- Problly this one

APRICOT I

3- When I see this I see um I see people struggling and I see uh a kite which once was used for happiness now it’s making them sad because they don’t have it and um ladder teamwork they’re trying to get that kite back down so they can use it again and uh probably (points at youngest child far left) th-most basic form of a human he’s just
observing everything maybe not talking but he’s just looking at what’s going on around him and the scenery and trying to put pieces together for himself I think yeah

/APRICOT I

3- Alright

3- I’ll probably choose the first one first

APRICOT II (A)

3- Beach scene, wow, so this simply reminds me of um kind of just a average day in the life in the summer time for someone who is looking for some fun not necessarily of any age but uh someone who least knows how to talk and more than likely is in past tenth grade I see uh some people eating some fried chicken maybe throwin’ it out in the ocean when he’s done with it and then I see this lady right here smokin’ a cigarette uh she seems like her name is Suzie and then we have some other people over here lookin’ like they’re just trying to get some sun in more over here are people of color they’re puttin’ their tanning oil on and then uh they’ve got their smokes and their food too and um looks like they’re gettin’ a little wild cause there’s definitely a shoe in the water and uhh... seems like they’re just ya know being teenagers careless that they careless as they can be as to please do not litter and there’s clearly trash everywhere so yeah there’s there’s that one

/APRICOT II (A)

3- Probably do this one

3- Ok
3- Yes

APRICOT II (B)

3- So I see it this looks like somewhat of a friendly neighborhood um they have a ramp in the middle of the side of the street fer kids uh who like to uh just be a little bit more living off the edge than others and it seems that these two were hangin’ out an uh goin’ for a ride and they were this one in particular went to go take a jump and uh fell or hurt himself or just his landing was just not too good for him and uh looks like he looks a little concerned got off his board and seems to be observing the situation and thinking that something might not be right and this is uh this is Bob who came to the rescue an he’s just making sure that these kids aren’t um doing nothin’ they shouldn’t be and maybe callin’ parents or an ambulance or whatever they’re needing assistance on at the time

/APRICOT II (B)

3- These are literally one of the worst things I hate doing in school but yeah I’ll do it
3- Yeah you were the first one who made me use those in class ya know did did the lil fold the paper hotdog hamburger and n write your story
3- Yeah ok
3- Probably
3- Yeah seriously
3- Wait so I'm supposed to make two different ones?
3- Ok
3- Yeah I've never been good at drawing like that either so
3- Ok
3- Uh so uh that’s like the most work I've done today
3- I feel like it is.
3- That was quick
3- Some questions about some pictures and hehe drawing of a comic
3- That’s some advanced stuff right there
3- Here ya go, is this yours?
3- Yeah I think it’s yours, its red
3- Well let me know how that goes for ya
3- Hope you get some good feedback about what I could do to learn better
3- True
3- Too much sometimes
3- Yeah

**Student 4 Transcript**

4- It’s good it’s just like a little frustrating like some of the people can get on your nerves and stuff like but other than that it’s I think its chooing good

**Typical Day**

4- Eh in school? or at home?
4- Umm I don’t really heh know like it depends on what you’re talking about like for school or just home
/Typical Day

Typical School Day

4- Alright um … umm .. I usually like just wake up 7:30 get ready go to school um take the bus to get to school um usuay get here around 8:15 um go in Daisy’s sit down just sit there on my phone usually but I can’t now so I usuay just like talk to Darrell or go downstairs play pool um then I wait for class to start and go to the my day

/Typical School Day

4- What I just said?

4- K

4- Mhm

4- Yeah

4- Alright

4- Mhm

APRICOT I

4- Ok um so three friends from school go to a park and play basketball and his friend passes the ball to them and it goes in the street and their friend runs n grabs the ball but there’s a car coming and I guess the car stops before it hits ‘em and he gets the ball and proceeded to play

/APRICOT I

4- Um these two

4- Umm I'll start with this one
APRICOT II (A)

4- Um ok so um maybe um their mom is watering her roses or her garden an um this kid’s brother was maybe putting air in his tires and he was putting paint on the house an he fell off the ladder and he hurt his knee... that’s all I have

/APRICOT II (A)

APRICOT II (B)

4- Um that these three … that these three people were playing on the ramp with their skateboards and or these two people were playing on their ramps with their skateboards and um one fell and um I really don’t know what else that’s all I know it’s all it looks like

/APRICOT II (B)

4- Yeah

4- I don’t like really have the like I don’t know anything to put into those boxes

4- Alright

4- Mhm

4- No

4- You’re welcome

Student 5 Transcript

5- How’s school goin’ for me right now it’s going alright um I dunno just trying to finished with it, uh my schedule’s really confusing because I have Melissa's class which she as you know is like half of Brian’s class but I’m not in Brian’s class
anymore because I'm doing online school instead so there’s that um I did actually oddly well for my first quarter I was surprised about that thought that was good uh I dunno

Typical Day

5- Uh I wake up I cry about waking up uh I eat a hotpocket or something and I’ll come to school uh sit in my class sometimes fall asleep uh just try to do my schoolwork um like Annie’s class or Dave’s class I fall asleep in there semi-frequently but I always get my work done so it’s very conflicting she says I'm the first student she’s ever met to be sleeping alot but always have his work done at the same time

/Typical Day

5- Step by step, ok so one I'll wake up ... wake up and be sad about it cuz I'm nocturnal I prefer sleeping during the day and doing stuff at night um I just work better that way um eat breakfast … uhm leave for bus… uhh … umm… so like and then I'll go home and I dunno play computer games … or sleep … I'm a known sleeper… or draw I like drawing uhhm eat my day is very simple

5- Yeah

5- Ok

5- Cool

APRICOT I

5- uhhhhhhmmmmmm ooh that one would be terrible mmm alright so this kid let’s call let’s call this person I dunno I can’t tell uhhh Samantha, Samantha and George and
their parents are doing the barbecue that is what it looks like and Samantha has thrown a ball onto the table knocking over all of the precious lemonade and Samantha’s parents just don’t seem to care what you don’t know is that it was Samantha’s cry for help er cry for attention from her parents and that’s all

/APRICOT I

5- Mhm

5- Mmm it’s cool

APRICOT II (A)

5- .. That looks like peanut butter.. Uh ok so that guy that guy’s angry because his girlfriend broke up with him cause he has anger management problems henceforth he’s throwing trash into the ocean and I don’t really know what this guy's story is but he’s staring at these people butterin’ themselves up with you know their suntan lotion while eating a bucket of fried chicken I dunno maybe they’re all friends but this guy butchers bothers me that wasn’t a story at all this is more observations I'm not good at making up stories but we’ll say Ken is a weirdo who stares at people and eats fried chicken and then it looks like these two are just relaxin’ he’s smokin’ somethin’ smokin’ cigarettes or er uh looks like there’s like trash spread out across the beach so looks like they don’t really care much for the environment

/APRICOT II (A)

APRICOT II (B)
5- Now Jimmy Jimmy over here has tried to jump over his fence on his bicycle and he has failed and he has caused to break his knee and his brother Jonathan rushes over and while his mother is gardening and watering all the plants she is shocked to see her son in agony an looks like he knocked over some paint wait someone is painting the house maybe he fell off there’s a lot of variables in this picture but yeah I'm gonna say Jimmy broke his knee also why a - there’s too many things goin’ on in this picture like how how is he whys he have the bat glove and ball cuz you can't use all those at the same time I mean I guess you could but but also like man this pictures got a lot of stuff goin’ cuz uh it kinda insinuates that he’s like fallen off his bike or maybe he’s fallen offa here but if he fell off his bike then what’s up with the this stuff and if he fell off this stuff what’s up with the bike hmm someone’s messy

/APRICOT II (B)

5- Yeah that’s my story

5- This guy’s face though… yeah ……. (unintelligible reference to using a few squares)

Student 6 Transcript

6- Pretty good

6- Yeah

Typical Day

6- At school on a typical day I spend my first 30 minutes a class doin’ some work and then I play on my phone for like an hour
/Typical Day
6- Aight
6- Aight
6- Mm, aight.

APRICOT I
6- Alright lets see here maybe two brothers and a little brother hanging out with the nice neighborhood girl flyin' a little kite havin' a good day and then all the sudden wind picks up kite gets stuck in the tree and then the nice brother the older one went n asked his dad for a ladder he got a ladder chick held the ladder for him went up got the kite n their beautiful day continued.

/APRICOT I
6- Alright
6- Good call
6 - Alright
6- Yeah

APRICOT II (A)
6- Ok so on this beautif’l summer day Johnny and Bob were out playing in the backyard. Their mom was watering the grass n then Bob got real mad when uh Jim went by and stuck his bat in the spokes n Jim hit the ground and hurt his knee real bad then their mom got real mad n kicked the paint over and it was a sad day (laughing) that was not a very good story
/APRICOT II (A)

6- Yeah that was not a good story

6- Ok, I dunno, I can’t come up with a story on these

APRICOT II (B)

6- I don’t know I don’t relate to sittin’ on the beach or skateboarding …. alright two boys were hangin’ out in the neighborhood playin’ on these skateboards one of them borrowed the ramp from their older brother so they could uh do some tricks off of it and then the one kid fell off his skateboard got hurt and then there was concerned dude on a motorcycle that stopped and asked em how they were doin’ and of course the kid sucked it up and said he was fine and the dude didn’t believe him so he wen over to uh Jim Bob’s house here told his mom and uh she’s comin’ to save ‘im now.

/APRICOT II (B)

6- Probably

6- Man my drawing is good

6- That’s my story

6- Best part of [School name] is they actually they actually care like if you miss school they’ll come and ask you why you miss school and if you’re doin’ bad they’ll be like hey man you need to change what you’re doin’ here cuz it’s not goin’ good for you that’s the main thing

6- Mhm

6- Alrighty
Student 7 Transcript

7- Uh school’s going pretty well I think … yeah

Typical Day

7- A typical day I mean I have it’s the A day B day schedule so um a days I just go to Melissa’s class and then Brian’s class which is kinda divided up weird in the sense that like we’re doing like kind of nonsense work in Melissa’s and then the actual work in Brian’s so it it’s weird but um and then I mean I don’t usually go to breakfast um just cuz I don’t generally eat at school um and then I have life transitions class which is really nice cuz Joe allows us to like have days where we don’t have to do all that much and then we like do like actual life work instead of like which classwork is important but it’s also like this is its real life skills and I mean it’s a really good class and then I have French which French is kind of off off-kilter right now but we’re getting’ the hang of it uh slowly but surely and then I have two different electives um and usually we either go to Memorial Park for soccer or we go to Washington slash Jackson with the fake Nike grass field and then um I just bust home from there and then or I have French Culture which is a really nice class because we only have like six students in there and we’re doing like good like fun work uh yeah

/Typical Day

7- Pen

7- Sure
7- Mhm
7- Alright
7- Ok
7- Alright

APRICOT I
7- Mmkay so um they’re having a good picnic um probably just the weekend and um they have two kids and the kids are playing ball but they were playing ball way too close to the food where they are currently making the food an uh this kid right here he threw the ball knocked over lemonade um and they’re very worried and parents don’t seem mad but they seem like they’re worried about that.

/APRICOT I
7- Mhm
7- Mhm

APRICOT II (A)
7- Ok so one of these kids parents is um probably like a stunt person um cuz the way this is rigged up is pretty good um and they decided to do skateboarding off of a ramp and then this kid uh didn’t have any proper protection on neither did this kid but he’s not doing it and he fell down and probably like scraped his knee or broke something and um looks like he didn’t really get too far um before he fell off which is good and luckily there’s uh person who’s older than them nearby

/APRICOT II (A)
APRICOT II (B)

7- Yeah. Um so this one everyone’s smoking and they’re not really like they can smoke but they’re putting their cigarettes out on the ground and it says please don’t litter so all these people at the beach were throwing bottles eating fried chicken dropping cola on the ground are breakin’ the rules and but there doesn’t seem to be anyone nearby to catch them so they’re fine for now

/APRICOT II (B)

7- Mhm

7- Mhm

7- Um well I mean all the staff here like kinda treat the students as like individuals and like they don’t really see them as students they see them like as people um which kind of really helps and then like there’s a level of trust in [School Name] where um like they trust you to get your work done um and like they know you can get the work done which really it’s like it’s nice to have that and then um you know also they’re always like there to help instead of li and like are willing to instead of like begrudgingly doing that

Student 8 Transcript

8- Alright

8- Really?

8- Yeah its hard ta debate about that
8- Mm really good easy goin’ right now first quarter was uh was uh struggle cuz uh I didn’t get my assignments turned in on time i get it the last second and finish it and I still got my I was failing math at first and then I finally got that back up cuz I changed the way I was doing in Daisey’s class like how I um actin ya know how’s my learning experience in that class and stuff and uh what I did was just I was on my phone too much hehe and I lis lis I was listening to music too much so I'd always have my earbuds in while she’s just talkin’ I'm lookin’ up and all I see is her mouth movin and like uh I’m makin’ a mistake here so I just started like takin’ em out and listening and got my grade back up last second and first quarter I barely got away with all A’s and B’s so now it’s new quarter so far so good and yea schools goin’ pretty good right now

Typical Day

8- Explain, like what do you mean?

/Typical Day

Modified Typical Day (What does a Typical Day look like for you)

8- Uh (exhale) well school mostly occupies me like without uh I don’t really do much I’m more of uh I’ve got a lot of time on my hands and I rely on school to keep me occupied along with sports and all that and uh typical day to me would just be wakin’ up goin’ to school getting’ my stuff done ya know I have music with me too cuz like I can’t can’t get through school without listening to at least one song that I like yeah the thing about the music is sometimes I there’s days where I don't really wanna talk to anybody or listen but I get my work done anyways because I feel like I know what I'm
doing but some days I just ya know go with the flow good mood and uh yeah typical
day I mean basically come in do it n leave and figure out what I’m gonna do next

8- Did that basically answer your question er was that

/Modified Typical Day (What does a Typical Day look like for you)

8- That’s why I was like…

8- Mhm

8- Alright

8- Mhm

APRICOT I

8- Ooh boy, uh uh lets see alright uh could I say I was in the story or my name um …
me and it was uh sunny Saturday maybe 12 o clock decided to go by this hoop on my
street and uh I was uh my buddy Cody and uh let’s see Evan were both ballin’ and uh
they were playin’ passin’ it to each other I was playing kinda like monkey in the
middle and uh I told ‘em once that uh Cody threw a pass that was a little out of control
on the street one time and I said hey car could be coming by and could create ball
could be gone and he was like oh ok I won’t do it again second time he tried to pass it
to Ian and threw it at him and Evan the ball slipped right through his hands and uh the
ball went in the street and next thing you know Evan is lookin’ looking both ways runs
right out to it on the way back he sees a car coming for his left eyesight for his left eye
and he looks and he steps back doesn’t grab the ball and car comes in and flattens it
and I looked over at my friend Cody and was like well we can’t play ball today man thanks to you and makin’ fun of him stuff but I'd say Cody learned his lesson but yeah

/APRICOT I

8- Yeah

8 - Pretty young kids, stupid eh

8- Ayep

8- Mhm

8- This reminded me of the segregation discrimination is that on purpose?

8- Mmm alright I'll uh do this one

8- Do you think I'll make it for my conference in time?

8- It’s supposed to be at 4:30

8- 4:45?

8- Cool I just wanna make sure

/APRICOT II (A)

8- umm ahhh I see so I'd say this guy on the bike right here names Tommy uh got his bike from his house riding round the street see two kids uh Red and Takuye skatin around uh put up their own ramp and uh Takuye was tellin to Red teachin him some new new moves on the ramp and uh Red the biker Tommy stopped and watched decided to just see what was goin’ down he thought about maybe I should go on the ramp he was gonna wait his turn without askin’ Takuye and Red so Red goes up he skates tries to go up the ramp but he the board slips right under him and goes to his
right and lands flat on his and then he falls with it he falls and he lands on his hands like a cat and uh he’s jus’ sittin’ there just in pain it looks like and uh Takuye’s like oh man he’s about to check up on him and then tony decides hey my turn now so he looks like Takuye’s about to go on the ramp and I dunno what’s gonna happen after that so uh guess three guys were just skatin’ around on a ramp … just happily ever after for them hehe I dunno

/APRICOT II (A)

8- Probably not the best
8- Uh … iyeee… this one I guess

/APRICOT II (B)

8- Um let’s see Fred and his little brother Bobby were in the backyard playin’ around his mom their mom was a waterin’ the plants n bushes and uh Fred got his bike started ridin’ around and uh bobby was playing baseball playin catch with either the mom while she put down the hose maybe spent a little time with him and uh Fred apparently looks like crashed on his bike ran into the um I don’t I don’t know looks like Fred uh fell off his bike uh maybe the bike hit this little um pump right here n the bike stopped he went he went swerve n Fred probably fell off the bike and landed on his leg wrong n the bike the uh his leg probably hit the ladder which there was paint on top of like and the paint must’ve fell off spilled everywhere mother looks concerned Bobby looks like oh gee whiz starts flipping out mom probably dropped the hose to go check up on Fred and Bobby’s probably concerned as well and uh I guess lesson learned from this
is uh don’t ride your bike in the back yard or don’t leave a bike out but… of course the other story would probably be the other way to look at it he had the bike layin’ down and he tripped over it but I don’t know

/APRICOT II (B)

8- Mhm
8- Mhm
8- That?
8- Mhm
8- Ah na
8- Do I have to fill out every single one
8- That basically sums it up
8- Mess around in the back yard trips over something lands on his leg wrong both are concerned
8- I been here a long time heh probably not as long as other people but feels like forever but I guess just uh some advice I mean more like you do here one on one you know
8- Maybe if they’re looking a little stressed or like you’re doing a good job of askin’ people like checkin’ up on like are you ok you doing good or you got it some good to know good to hear from like very caring teacher and uh I think by just doing what you’re doing right now hopefully getting’ other students to get on and get their work done in your class cuz your class is easy a, learn alot, easy a, quiz, love it, and uh a
very fun always I always like your class very first thing prefer it way better than math
like last year sucks
8- Yeah I guess just pay more attention rather than having students like just stop
slackin’ I guess
8- Mhm

Student 9 Transcript

9- Uhh
9- It’s going pretty good uh like this year you mean specifically?
9- Yeah uh well this year was kind of a slow start a little bit cause I just kind of began
the year not wanting to go to school as everyone does but like like every single year
with me I don’t begin a school year ever well like I don’t like actually start off well
usually but like as the year goes on I get better and better and pay attention more and
yeah so yea its things are getting way better now ya know it's getting faster just have
just have some personal life stuff to deal with right now (alright) at the moment so
yeah (ok) like movin’ houses and stuff so yeah (oh) yeah

Typical day

9- Typical day at just school ya know?

/Typical day

Typical school day

9- Uh

/Typical school day
**Typical day (repeated)**

9- Uh… ya know I just get up in the morning pretty early uh I donno I just eat breakfast go to school you know go to math class and ya know I don’t I don’t really do much during lunch I don't like go hang around all around other places that's I just kin-hang outside the doors of the school and stuff ya know just just a pretty normal day whi-while I'm at home I just don’t really um I don’t I don’t do much ya know just kinda laze around until something happens which is not super often so uh yeah that's just a typical day

/Typical day (repeated)

9- Alright

9- Yeah

9- Yes

9- It’s it’s pretty short ya know just kinda summarized it it’s a pretty short summary too just kinda ya know

9- Mm I guess I’ll just uh pick out this one right here

**APRICOT I**

9- Yeah the basketball one uh so three guys three friends I'm gonna name that one right there uh Joey that one um Danny and that one Stephen and I'll just that guy doesn’t really matter so they’re playing basketball and stuff and it seems like these two it seems like he’s kind of a third wheel in there cuz these two seem to be attracting way more looks like he threw the ball into the street and it looks like he’s about to go
into the street and get hit by a ya know the guy driving the car so it's pretty basic ya
know not very much uh not a lot of people playing basketball and also in a very
strangely small court and a very also sorta strangely shaped one because I don’t see
many courts on the side just on the side of a sidewalk and also one hoop and also
there’s kinda look like uh they don't look like basketball uniforms they just kinda look
like soccer uniforms strangely to me eh that’s pretty much it it seems like he’s about to
stop cuz he sees that he’s coming hopefully he doesn’t get run over so yeah

/APRICOT I

9- Just like it I've never seen a lot of people wear just like normal ah shirts like that
with uh soccer er like ya know with basketball they’re always wearing some kinda ya
know a jersey or something

9- Ok

9- Alright

9- Alright, uhh … So I guess I'll begin with this story and uh should I begin?

/APRICOT II (A)

9- So yeah I'll start with this one and it seems that that uh these two kids right here I'm
gonna name that one uh sss uh Marco and D-Dewey and it seems that Marco and
Dewey were messing around and one thing I definitely notice about this picture is that
none of them are wearing helmets or any gear whatsoever like it’d be bad enough but
ya know it's just they’re not wearing any kind of protection gear and they were playing
with this kinda ya know I don't know anything about skateboards but is that a half-
pipe right there or a I don’t know what that is [Researcher: “Quarter pipe I think because it looks like it’s a quarter of a circle to me’”] yeah but like uh they were playing around and uh I'll name this guy uh Arthur he seems and it seems that Arthur was doing quite the opposite of what they were doing because he actually wore a helmet and it looks like he’s safe and he’s ready to drive he even has the boots and everything and he noticed that they fell I'm assuming the events that are after this picture are gonna be him telling them that they weren’t safe and then uh yeah so yeah um probably go onto to the next picture.

/APRICOT II (A)

/APRICOT II (B)

9- Uh this picture is pretty self-explanatory um so you see all these people on the beach and the first thing that comes to mind is this ah garbage can back here that says please don't litter but there's like litter everywhere for one thing you have like this guy with his chicken-fry his fried chicken for one thing also you shouldn’t eat fried chicken before you’re gonna go swimming cuz that probably wouldn’t make your stomach feel very good but uh you see that ya know he might leave his like ya know the bones all over the ground or whatever or just the whole entire bucket itself you see a can right here some other stuff right here ah this guy’s cigarettes are just ya know he’s just stuffing them into the ground instead of actually throwing them away some chips everywhere that ya know are probably gonna get left behind and you also notice that they were even lazy enough like they got to the garbage can but they didn’t even
throw it in the garbage and just right here you have this lady smoking over there and she's probably gonna like ya know leave it on the ground too and then you have this guy over here who's throwing something into the ocean like a bottle of some sort um yeah you got some shoes right here and everything so it just doesn’t seem like a good idea because they’re polluting the beach ya know that makes everyone else who's probably also on the beach trying to enjoy the beach have a less fun time because ya know you getting’ all dirty and stuff so yah

/APRICOT II (B)

9- So just the last story or the both the stories?

9- Alright

9- Alright I’ll just do the last one ok just uh cruddy sketches but whatever

9- Yeah no I'll do it

9- Here

9- Yep

9- Do you want these?

9- Yep

9- Uhh I think the new teachers that we got recently are pretty good too like Daisy she’s pretty good uh you know I dunno eh I like the I like the uh new stuff that they brought to the table this year you know like you know the all the the literal new tables the everything like that um there’s a lot of improvements and uh ya know I've always
been happy with this school there’s never actually I've never had a huge complaint
about it or anything
9- So you know, not much
9- Alright
9- Thank you

**Student 10 Transcript**

10 - Um better
10- Yeah it’s like um academic lab is helpin’ me a lot um and basically just that last
meeting that I had with Adam telling me that I need to basically just like straighten up
or and get all my like classwork done or I’m gonna be out ya know cuz other people
need spots too so basically I just signed up for academic lab and then I been tryin’ like
harder you know and then bringing work there and that’s helpin’ me f-like finish .. n
um pass all of my classes that I wouldn’t have
10- Yeah

**Typical Day**

10- You mean...

/Typical Day

**Typical School Day**

10- Like during school?

(Researcher confirms that that is what is being asked)

10- Um I dunno I’m not sure I go to my classes
/Typical School Day

10- I don’t I dunno I don’t know how to say that uh

10- I start with um Nikki

10- In science

10- I I am a lot more now

10- ok

10- umm I guess this one

10- um they’re at a family barbecue and these are their children basically and they’re playing I’m guessing maybe I don’t know they weren’t ‘sposed to be playing that close maybe and they did anyways and they screwed up they knocked over food er something er drinks and uh I don’t know this doesn’t show that much but I dunno

10 -yah

APRICOT II (A)

10- mkay I ..k .. there’s these two kids I don’t know their names hehe um they were skateboarding and they were tryin’ they were tryin’ out this new jump they just made and this kid got hurt uh a pedestrian driving by on his motorcycle noticed and pulled over to see if the kid was ok

/APRICOT II (A)

APRICOT II (B)

10- Um this is a beach and there’s a lot of pollution on it so they placed trash cans all around it to prevent littering so people throw away their trash and nobodies using it
they’re um basically yeah nobody nobodies usin’ it nobody cares they’re just littering anyways I don’t know yeah this guy’s got a bucket of fried chicken this guy’s throwin’ stuff into the water it doesn’t really look like a rock it looks like something else a shoe floating uh … uh… that’s it yeah

/APRICOT II (B)

10 - Ahh my goodness

10- I’ll do this one

10- Yeah

10- I don’t even know how to … man hmm…

10 - and there’s (unintelligible muttering to self about cartooning)… I don’t even know I don’t know what all to write about this I don’t know I don’t think I can fill all these out