Contact Lens, Academics, and Self-Perception (CLASP) Study:

Study Design and Initial Results

THESIS

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By

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Abstract

The Contact Lens, Academics, and Self-Perception (CLASP) Study is a small investigational study which seeks to determine the effects refractive error correction has on students from the Franklinton Preparatory Academy (FPA). Previous literature has shown that refractive correction using eyeglasses can be detrimental to one's self-perception, and opinions about one's physical appearance. Other studies show evidence that contact lens correction of refractive error can possibly improve one's self-esteem and their perception of their appearance.

In this study, students at FPA were screened according to The Ohio State University College of Optometry's vision screening guidelines over the course of 3 years. Students who failed the vision screenings were offered a chance to join the CLASP study to receive a comprehensive vision exam with the potential to be fit in soft contact lenses, if the patient wanted. The Self-Perception Profile for Adolescents (SPPA) was performed on all 9th and 10th graders during the 2017-2018 academic year to create a baseline measure and provide initial measures for subjects recruited. This baseline data was also used to perform a Rasch Analysis on the SPPA. The SPPA was later re-administered to subjects during the 2018-2019 academic year to investigate changes in self-perception from refractive error correction.

Overall, the vision screening results showed a large unmet need for refractive correction in the student population of FPA, with referral rates nearing 50% every year a

screening was performed. The Rasch analysis on the SPPA showed that only the Athletic Competence, Physical Appearance, and Scholastic Competencies can be used to reliably rank subjects.

Utilizing mean differences, it was found that subjects fit in contact lenses experienced modest improvements in their Physical Appearance, Athletic Competence, Social Competence, and Global Self-Worth subscales on the SPPA, whereas those in spectacles experienced decreases in all nine subscales. Although these changes were found, they must be interpreted with caution due to the small sample size provided by the subjects, as well as large standard deviations present in all mean measurements.

While the SPPA data for this phase of the CLASP study has proven inconclusive, anecdotal evidence exists to suggest that some positive effect on self-perception may exist in the subjects, though the current instrument used may not be sensitive enough to determine this effect, or the sample size needs to be increased in future studies.

Dedication

This document is dedicated to my parents Mark and Ann for their love and support throughout this study.

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I would like to extend my sincerest acknowledgements to the Franklinton Preparatory Academy's administration, staff, and students. Without their support this project would not have been made possible. I would also like to thank Lower Lights Christian Health Center's optometry clinic for offering their clinic and time for performing vision exams and contact lens fittings on our subjects. Without the help of these organizations this project would never have been possible.

I would also like to thank Dr. Bradley Dougherty for his assistance in performing the Rasch analysis on my initial data.

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Chapter 1: Introduction

The Contact Lens, Academics, and Self-Perception Study (CLASP) is a multi-year small investigational study that is focusing on observing the effect of various methods of refractive error correction on the self-esteem and academic performance of adolescents from an economically depressed neighborhood in Columbus, OH. The CLASP Study is focused on treating students from the Franklinton Preparatory Academy (FPA), a small charter high school in the Franklinton neighborhood of Columbus, which enrolls around 50 students per grade.

Utilizing data from the Neighborhood Atlas (an online program that shows the socioeconomic status of neighborhoods in the United States of America) it can be observed that the Franklinton neighborhood has an area deprivation index (ADI) ranging from about 7 to 10 (University of Wisconsin School of Medicine and Public Health, 2018). The ADI is a numerical value that quantifies the socioeconomic advantage or disadvantage of neighborhoods, with an ADI of 1 being the least disadvantaged and 10 being the most disadvantaged. Recent studies have linked the deprivation of a neighborhood to both increased risk of mortality (Singh, 2003) and to poorer access to basic healthcare (Knighton, 2018).

The primary goal of this study is to observe any changes in self-perception elicited through refractive correction (through either eye glasses or soft contact lenses)

with a secondary goal being to determine what if any effect refractive correction may have on academics. The academic changes will be evaluated in a future paper.

Self-perception, or how one views and evaluates the aspects of their self, is a topic of significant debate and research. Research in the field of self-perception is oftentimes taken with a grain of salt, due to the lack of objective measures for self-esteem; rather most measures of self-esteem are in the form of subjective surveys and are vulnerable to self-bias (Baumeister, 2003). Despite the fact that measures of self-perception/esteem are subjective in nature, they have been found to be able to predict health and behavioral outcomes for children and adolescents as they move into adulthood (Haney, 1998; Trzesniewski, 2006).

In order to understand the potential effects of varying levels of self-esteem on an individual's health, it is first important to understand how self-perception generally develops. During infancy, self-perception is generally presumed to be in its crudest stage of only recognizing the self physically. As we move into childhood self-perception becomes more refined, with children being able to perceive themselves as separate from others, yet still being confined to primarily physical traits to differentiate the self and others. It is not until adolescence where one begins to ruminate more upon the self and begin to appreciate the psychological aspects of the self, as well as the unconscious aspects. It is in this stage that an individual begins to understand more abstract concepts related to themselves, and they begin to rely less on simple physical characteristics to evaluate themselves (Damon, 1982). It is during adolescence that individuals may become more critical of themselves, and it has been noted that during adolescence there

is a decrease in one's opinion of their physical appearance, as well as social acceptance (Bolognini, 1996). Outside of this decrease, most other domains of the self remain relatively unchanged without a direct intervention (Young, 2003).

Knowing that self-esteem develops through childhood and stabilizes in adolescence, it becomes important to consider how the self-esteem can affect an individual's life. Self-esteem itself should be considered a spectrum of sorts spread between low and high self-esteems. An area of concern regarding self-esteem (specifically low self-esteem) is a potential link between antisocial behaviors and aggression and self-esteem. Donnellan and colleagues (2005) found through a series of three studies that there is a correlation between lower self-esteems and increased likelihoods of individuals externalizing their problems (either through delinquency in school, or through increased aggression towards others). These results imply that individuals with low self-esteem will tend to externalize their problems, rather than internalize or adapt to. Individuals with low self-esteem may be more likely to experience increased feelings of shame or inferiority than high self-esteem individuals. The need to protect oneself from these feelings may explain the correlation of increased externalization of problems in individuals with low self-esteem (Tracy, 2003). In a similar vein, it has been found that low self-worth or esteem may cause individuals to seek out more negative information about themselves, increasing the risk of developing depression (McCarty, 2007). Trzesniewski and colleagues (2006) found similar findings using data from the Dunedin Multidisciplinary Health and Development Study birth cohort in New Zealand. Through their research, low self-esteem in adolescence was

found to increase the risks of physical and mental health problems, as well as increase the risk of criminal convictions and tobacco dependence in adulthood.

While low self-esteem has been linked with increased risks of negative incomes, high self-esteem appears to promote the opposite. DiPaula and Campbell (2002) found that individuals with high self-esteem may be more likely to pick up on cues to cease impossible tasks, or to find alternate methods to achieve a task than those with low self-esteem. It was theorized that this difference between methods could be attributed to high self-esteem individuals being more driven to seek success while low self-esteem individuals were more driven to avoid failure. In the same study it was found that high self-esteem individuals were more likely to achieve their academic goals over the course of a year and contemplate their goals far less than individuals with low self-esteem. High self-esteem has also been correlated with developing better social skills, coping abilities, and overall academic achievement (Haney, 1998).

While levels of self-esteem have been shown to be correlated with various outcomes, it is important to take these results with reservation. As Baumeister (2003) points out, the current literature cannot prove that varying levels of self-esteem are the causation of outcomes. Rather, self-esteem and positive outcomes may be a "chicken and the egg" situation. Baumeister cautions that individuals with high self-esteem may be more prone to exaggerate their good traits, while low self-esteem individuals may be more prone to exaggerate negative traits. While Baumeister suggested doubting that self-esteem can reliably be affected through interventions; a meta-analysis by Haney and Durlak (1998) argues just the opposite. Haney found that self-esteem can in fact be

reliably influenced, however sample sizes to find the effects of self-esteem studies may not have the appropriate power to find the relations. Haney showed that most studies in self-esteem show very modest correlations, which cannot always be found in smaller studies.

While self-esteem has important implications for one's health and success, it's important to consider how refractive error can affect self-esteem. Refractive error can be broadly classified as myopia (nearsightedness) or hyperopia (farsightedness). Myopia occurs when the focal point of the eye falls anterior to the retina, leading to a blurred image falling on the retina. Hyperopia occurs where the focal point of the eye falls posterior to the retina leading to a blurred retinal image, however many young patients with hyperopia are able to accommodate which can move the focal point onto the retina. Uncorrected refractive error is the leading cause of preventable blindness worldwide, with over 153 million people suffering from correctable visual impairment (Resnikoff, 2004). In the United states alone, it's estimated that at least 15% of children have myopia by the end of middle school, and this number increases to about 25% by adulthood (Leonard, 2002). There is less available data for uncorrected hyperopia, however it is estimated to affect up to 10% of adults in the United States (Leonard, 2002), and significant hyperopia (>+3.00 D) is present in about 4.4-14% of preschool children (Kulp, 2016).

Uncorrected, or under corrected, myopia and hyperopia each present their own unique effects on the visual system and associated aspects of life. In general, uncorrected refractive errors have been found to be associated with poor performance in school,

especially in vision intensive subjects like math and reading (Harrie, 2015). This poor performance in school has also been associated with lessened career prospects in adulthood (Dandona, 2001). Harrie (2015) found that uncorrected refractive error was more common in incarcerated adolescent populations than in the general population. Uncorrected refractive error has also been found to be more common among individuals from lower socioeconomic backgrounds (Taylor, 2000).

While uncorrected refractive error has negative effects on an individual's success and self-concept, correcting refractive error has its own set of concerns. It is important to note at this point that the great majority of literature on the effects of refractive error correction on self-perception have been primarily based on myopia correction and not on the correction of hyperopia. It can be assumed, with substantial caution that hyperopic correction may show similar effects as myopic correction, as both are correctable with eyeglasses and contact lenses. Uncorrected hyperopia itself is associated with decreased visuocognitive abilities, reading, and visual attention (Simmons, 1988; Stewart-Brown, 1985; Grisham, 1986), however treatment of hyperopia can reduce or reverse these deficits, should treatment occur early enough (Roch-Levecq, 2008).

The oldest and most physically apparent method of refractive correction lies in correction with prescription eye glasses. In popular culture individuals wearing eye glasses are often portrayed as shy or withdrawn, intelligent, or "nerdy." Terry and colleagues (1997) confirmed some of these stereotypes finding that individuals wearing eye glasses appear less forceful, less attractive, and more intelligent than their peers without spectacle correction. It has also been found that the negative stereotypes

associated with wearing eye glasses are more definite in men than in women (Terry, 1989). Wearing eye glasses has also been found to be linked to increased anxiety (especially regarding one's appearance) and decreased self-esteem due to this increased anxiety (Terry, 1990). While wearing eye glasses may lead to a decrease in self-esteem, a study by Walline and colleagues (2008) found that children did not make peer judgements based on eye glass wear alone. It is important to note that while the literature seems to point to eye glass wear leading to lowered self-esteem, many of these studies are dated and the popularity and style of eye glasses have advanced considerably in recent years.

An alternative method to correcting refractive error is through the use of contact lenses, and in particular soft contact lenses. In the eye care community there are some practitioners who have shown hesitation to correct refractive error in children and adolescents with soft contact lenses due to the risk of corneal health complications that may arise from improper use of the lenses, which can be visually debilitating. However, Walline and colleagues (2007) found that children and adolescents have similar safety profiles to using soft contact lenses as the adult population, and it was found that contact lens wear improved subjects' quality of life and opinions on their appearance. A study following subjects who had enrolled in the Correction of Myopia Evaluation Trial (COMET) found that the decision, and not the simple act of wearing of soft contact lenses had a positive effect on self-esteem (Dias, 2013). The effect of making the decision to wear contact lenses proved to have a more beneficial effect on self-esteem than in patients who chose to wear eye glasses instead of contact lenses. Another study

found that randomized contact lens wear led to subjects being more confident in their social skills and appearance and led to slightly elevated self-esteem scores (though non-significant when compared to eye glass wear) (Terry, 1997). In the Adolescent and Child Health Initiative to Encourage Vision Empowerment (ACHIEVE) Study, Walline (2009) and colleagues found that contact lens wear did not cause significant improvements to most domains of self-esteem in subjects when compared to a cohort wearing eye glasses. However, the ACHIEVE study did find that that contact lens wear did improve one's perception of their appearance, social acceptance, and athleticism. An important difference to note between the ACHIEVE study and Dias' study on contact lens wear was that Dias found that children who chose to wear contact lenses already had higher self-esteem values on the Self-Perception Profile for Children (SPPC) than their glasses wearing peers, and that this higher self-esteem remained constant even after wearing contact lenses.

The CLASP Study aims to evaluate the effects that refractive correction (either through eye glasses or soft contact lenses) have on self-esteem as measured through the Self-Perception Profile for Adolescents (SPPA) (Harter, 2012). This paper will focus on the preliminary findings of the study after one year of refractive error correction. The primary outcome measurement is changes in global self-worth domain of the SPPA, with secondary outcomes evaluating preliminary school screening results, performing a cursory Rasch analysis on the SPPA, as well as evaluating changes in the remaining domains of the SPPA.

Chapter 2: Methods

This study's methods were reviewed and approved by the biomedical institutional review board of The Ohio State University, and follows the protocols established by the Declaration of Helsinki. All subjects gave assent to be included in the study with parental consent being obtained for subjects under 18 years of age.

In order to determine the feasibility of this project vision screenings following the Modified Clinical Technique (MCT) were performed before beginning the study on 9th through 12th grade students at FPA in 2016. A second school screening was performed in 2017 on 9th through 11th grade students, with a third being performed in 2018 on 9th graders alone. Pass and fail criteria for the vision screenings followed the Ohio State University College of Optometry guidelines included in Table 1. All students at FPA were invited to undergo the vision screening.

Vision Screening Referral Criteria	
Test Parameter	Failure Criteria
Visual Acuity	
Distance	20/40 or worse vision in either eye, or 2 line difference between eyes
Near	20/40 or worse in either eye
Refractive Error	
Hyperopia	>+1.50D
Myopia	>-0.50D
Astigmatism	>1.00 DC in any meridian
Anisometropia	>1.00D difference between eyes
Cover Test	
Distance	
Tropia	Any tropia
Esophoria	>5 pd
Exophoria	>5 pd
Vertical Phoria	>2 pd
Near	
Tropia	Any tropia
Esophoria	>6 pd
Exophoria	>10 pd
Vertical Phoria	>2 pd
Ocular Health	Any pathology or medical anomaly

Table 1: Vision Screening Referral Criteria

Any student who failed the vision screenings, or who was already wearing refractive correction, was given information on this study and were issued a subject assent form and parental consent form, unless it was determined they had any ocular health or binocular vision disorders which would interfere with proper refractive correction. Those who consented to being included in the study were given comprehensive vision exams at Lower Lights Health Center. At the conclusion of the vision examination the precepting optometrist decided if the candidate met inclusion criteria based on clinical judgements. Inclusion criteria for the study included being currently enrolled at FPA, being present and available for administration of the SPPA, having correctable refractive error with no restrictions on magnitudes of hyperopia or myopia, and being free of underlying ocular health concerns beyond the scope of optometric care and being free of underlying binocular vision disorders which may require special intervention. Exclusion criteria for the study included not requiring refractive correction (less than 0.50D of myopia, or less than 1.50D of hyperopia without the presence of greater than 0.50D of astigmatism), ceasing, or no longer holding active enrollment at FPA, being unwilling to complete the SPPA, having visually significant ocular health concerns, having untreated visually significant binocular vision conditions, having a history of previous contact lens wear, and any adverse events related to contact lens wear.

Those recruited into the study were all initially fit in spectacles for their primary refractive correction. The option to be fit in contact lenses was offered to all subjects after they had received their spectacles and had proven they would willingly wear spectacles.

Those who elected to be fit into contact lenses were fit in daily wear disposable soft contact lenses provided through the Cooper Vision Adopt a Patient program. Subjects were instructed on proper insertion and removal of the contact lenses and were provided on thorough education on the proper cleaning and maintenance of their contact lenses. As mentioned above, if a subject wearing contact lenses had an adverse event related to contact lens usage they would be removed from the study, but the option to be treated at Lower Lights would be present.

In order to measure self-perception the SPPA (Susan Harter, 2012) was administered once during the 2017-2018 school year before treatment began around October, and again in the 2018-2019 school year around March. During the 2017-2018 school year the SPPA was administered to most of the 9^{th} and 10^{th} grade students to create a baseline comparison group to compare subject data to. This was done due to the SPPA being validated on a primarily Caucasian middle-class population that does not necessarily reflect the CLASP study population.

The SPPA was utilized due to its unique questioning format, rather than the simple "yes" or "no" responses. The SPPA consists of 45 questions that evaluates nine domains of self-perception. The questions in the SPPA are formatted as opposing statements (one positive statement, and one negative) and subjects are first asked to choose which statement they identify most with. After choosing their corresponding statement subjects are then asked to decide if this statement is "Sort of True for Me" or "Really True for Me." These answers are then scored as an integer value between 1 and 4, with 1 being the poorest score, and 4 being the highest. The SPPA itself is considered

an upward extension of the Self-Perception Profile for Children (SPPC) which was previously utilized in the ACHIEVE (Walline, 2009) and COMET (Dias, 2013) studies. The primary difference between the SPPC and SPPA is a change in the verbiage of the questions to reflect the level of education of adolescents, as well as the inclusion of three new domains (Job Competence, Romantic Appeal, and Close Friendships). The SPPA is included in Appendix C.

The SPPA was administered to all 9th and 10th graders during the 2017-2018 school year in order to create a baseline measurement to compare the treatment and control groups against. This baseline was utilized due to the SPPA being validated in primarily white/Caucasian middle class neighborhoods. Analysis of the self-perception survey data will be performed utilizing the statistics program SPSS. Mean differences will be calculated for the various scales of the SPPA as well as the global self-worth scale.

A preliminary Rasch analysis was performed first on the SPPA in its entirety, then separately ran on each individual domain. In the individual domain analysis, any domain which did not meet the criteria listed by Pesudovs et al (2007) in the Person Separation Index (PSI) was not further evaluated. Those domains which met the PSI criteria were further evaluated in both Item Separation Indices (ISI) and had an Eigenvalue calculated for the first contrast of the principal component analysis of residuals.

While not presented within this paper, the academic performance of the CLASP subjects will be evaluated in the future using results obtained from FPA using the I-Ready test. The I-Ready test is a standardized test issued to students at FPA twice a year

that evaluates the students' abilities in reading and mathematics. The I-Ready test is issued to students twice a year, once in September, and again in January.

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
23.	☐	☐	Some teenagers feel they are old enough to get and keep a paying job	**BUT**	Other teenagers do not feel that they are old enough, yet, to really handle a job well	☐	☐
24.	☐	☐	Some teenagers feel that people their age will be romantically attracted to them	**BUT**	Other teenagers worry about whether people their age will be attracted to them	☐	☐
25.	☐	☐	Some teenagers feel really good about the way they act	**BUT**	Other teenagers *don't* feel that good about the way they often act	☐	☐
26.	☐	☐	Some teenagers *do* know what it takes to develop a close friendship with a peer	**BUT**	Other teenagers *don't* know what to do to form a close friendship with a peer	☐	☐

Figure 1: Sample of SPPA items

Chapter 3: Results

During the 2016 school screenings a total of 31 students were screened across grades 9 through 12. A total of 21 9th grade students were screened, with 14 failing the screening leading to a referral rate of 66.7%. 6 10th grade students were screened with 1 failing leading to a referral rate of 20%. From the 11th grade 4 students were screened with 2 fails making a 50% referral rate. Only 1 student from the 12th grade class was screened; this student failed the screening criteria leading to a 100% referral rate. Across all grades there were 18 students who failed the screening, making the overall referral rate for this screening 58.1%. The ages, sex, grade, and screening criteria failed by each student is included in table 1. Of the 9th grade students who failed the average age was 14.57±0.76 years, with 64.29% (n=9) being male. The sole 10th grade student to fail was 15 years of age and was male. The 11th grade students who failed had an average age of 16.50±0.71 years, with 100% (n=2) being male. The 12th grade student was 17 years old and female. Uncorrected, or under-corrected, refractive errors (n=13) and poor distance visual acuities (n=13) were the primary reasons for failure during the vision screening.

During the 2017 school screenings 35 students across grades 9 through 11 were screened. 28 9th grade students were screened with 35.71% (n=10) failing the screening with 30.00% (n=3) being male. In the 10th grade class 4 students were screened, with 75.00% (n=3) failing, with 100% of those referred being female. In the 11th grade class 4 students were screened with 75.00% (n=3) being referred, and 100% being female. The overall referral rate from these screenings was 45.71% (n=16). The grade, sex, and failure

criteria for each student who failed has been included in Table 2, ages of the students were not recorded during this round of screenings. In those students referred 81.25% (n=13) were referred for uncorrected, or under-corrected, refractive error, 50.00% (n=8) were referred for poor distance visual acuities, 25.00% (n=4) were referred for cover test abnormalities, and 12.5% (n=2) were referred for ocular health concerns.

Age	Grade	Sex	Fail reason
14	9	F	VA/RE
14	9	M	VA/RE
14	9	F	VA/RE
14	9	M	CT
14	9	M	VA/CT
14	9	M	VA/RE/CT
14	9	M	VA/RE
14	9	M	VA/CT
15	9	M	CT
15	9	F	CT/RE
15	9	F	VA/RE
15	9	F	CT
16	9	M	RE
16	9	M	VA/RE
15	10	M	VA/RE
16	11	M	VA/RE
17	11	M	VA/RE/CT
17	12	F	VA/RE

Table 2: Students and failure criteria of 2016 school screening. VA - visual acuities, RE - refractive error, CT - cover test

Grade	Gender	Fail criteria
9	M	VA/RE
9	M	RE
9	F	VA/RE
9	M	RE
9	F	CT
9	F	CT/RE
9	F	CT
9	F	RE/OH
9	F	RE
9	F	VA/RE
10	F	CT/OH
10	F	VA/RE
10	F	VA/RE
11	F	VA/RE
11	F	VA/RE
11	F	VA/RE

Table 3: Students and failure criteria of 2016 school screening. VA - visual acuities, RE - refractive error, CT - cover test, OH – ocular health

During the 2018 school screening 8 students from the 9th grade were evaluated. Of the 8 students screened 50.00% (n=4) were referred. Of the 4 students referred, all were male. Of the students referred from the screening 100% were referred for uncorrected or uncorrected refractive error, 75.00% (n=3) were referred for reduced distance visual acuities, and 25.00% (n=1) was referred due to cover test abnormalities. These results are shown in Table 3. The age of the students screened were not recorded.

Grade	Gender	Fail Criteria
9	M	VA/RE
9	M	RE
9	M	VA/RE/CT
9	M	VA/RE

Table 4: Students and failure criteria of 2016 school screening. VA - visual acuities, RE - refractive error, CT - cover test

The results of the preliminary Rasch analysis on all items in the SPPA without consideration of the domain are included below in Table 4. The analysis revealed a PSI of 3.38, indicating good discrimination between individuals. The ISI for the overall SPPA was 2.47 showing good discrimination between individual items within the SPPA. Finally, the first Eigenvalue of 6.1 indicates a multidimensional nature to the SPPA as anticipated.

Scale	Person Separation Index	Item Separation Index	Mean (SE) Person Measure (logits)	Eigenvalue of 1st Contrast of Principal Component Analysis of Residuals
All Items	3.38	2.47	0.27 (0.09)	6.1

Table 5: Rasch analysis results on all items within SPPA

The results of Rasch analyses for each independent domain within the SPPA are listed in Table 5. Of the nine domains within the SPPA only three met the >2.00 criteria within the PSI analysis. These three domains were Physical Appearance (PSI=2.16), Athletic Competence (PSI=2.06), and Scholastic Competence (PSI=2.01). Job Competence had the lowest PSI (1.01) out of all domains. Of the three domains meeting the PSI criteria, only two had ISI >2.00 (Athletic Competence and Scholastic Competence). All three domains meeting the PSI criteria had Eigenvalues less than 2.0 implying they are unidimensional measures.

Scale	Person Separation Index	Item separation Index	Mean (SE) Person Measure (logits)	Eigenvalue of 1st Contrast of Principal Component Analysis of Residuals
Global Worth	1.58	1.65	0.74 (0.22)	
Friends	1.34	3.17	0.25 (0.16)	
Behave	1.64	2.13	0.53 (0.21)	
Romantic	1.48	2.85	0.16 (0.20)	
Job	1.01	2.46	1.03 (0.16)	
Phys App	**2.16**	1.75	-0.04 (0.35)	1.6
Athletic	**2.06**	2.16	-0.35 (0.28)	1.5
Social	1.73	1.47	0.34 (0.20)	
Scholastic	**2.01**	2.41	0.83 (0.26)	1.7

Table 6: Rasch analysis of independent domains of SPPA

For the baseline comparison group the SPPA was administered to 41 FPA students. The data obtained from these surveys were coded and identifiable information was removed. Out of the students surveyed 46.34% (n=19) were male with a mean age of 15.54±0.94 years. The raw data and means for each individual within the cohort group is

contained in Tables 18 through 26 in Appendix A. The mean for each domain for the baseline group is contained below in Table 7. As can be seen in the table below there are a few notable gender differences in SPPA results. One notable difference lies in the Physical Appearance domain, where men scored higher than women on average. Women scored higher than men in the Behavioral Conduct and Close Friendship domains.

Domain	Overall Mean	Mean for Males	Mean for Females
Scholastic Competence	2.77±0.78	2.68±0.80	2.85±0.77
Social Competence	2.66±0.66	2.58±0.58	2.72±0.73
Athletic Competence	2.36±0.84	2.50±0.83	2.25±0.85
Physical Appearance	2.51±0.98	2.78±0.86	2.27±1.03
Job Competence	3.05±0.53	2.99±0.57	3.10±0.50
Romantic Appeal	2.59±0.64	2.48±0.75	2.67±0.53
Behavioral Conduct	2.67±0.67	2.40±0.65	2.90±0.62
Close Friendships	2.63±0.56	2.45±0.58	2.78±0.50
Global Self-Worth	2.85±0.68	2.80±0.69	2.89±0.68

Table 7: Mean results of SPPA for baseline cohort group

In total 9 students were initially recruited into the CLASP study from FPA. 33.33% (n=3) of the subjects were male. The subjects had a mean age of 15.44±1.01 years. 33.33% (n=3) of the subjects elected to be fit in contact lenses with 66.67% (n=6)

electing to receive only spectacle correction. Of the 9 initial subjects 55.56% (n=5) had myopic refractive errors, while the remaining subjects had hyperopia greater than +1.50D. Refractive errors are presented in Table 8. The initial means for each of the SPPA domains for the subjects is presented in Table 27. The overall mean for the treatment groups, as well as gender-specific means are displayed below in Table 9. As with the cohort group there are several domains with gender differences. Women in the treatment group scored higher in the Physical Appearance, Job Competence, Behavioral Conduct, Close Friendships, and Global Self-Worth domains than the male subjects. Subjects who decided to pursue contact lens wear scored lower in general in the Social Competence, Athletic Competence, Physical Appearance, Close Friendships, and Global Self-Worth domains than subjects opting for spectacle corrections. However, the subjects who chose to wear contact lenses did score higher in the Romantic Appeal domain.

Subject	**OD**	**OS**
7*	-0.50 DS	Pl -0.25 x 120
18**	-4.75 -1.50 X 169	-4.00 -1.25 x 176
24	-2.00 -1.25 x 115	-2.25 -1.00 x 065
30	-0.75 -0.75 x 092	-0.25 DS
38*/**	+8.00 -3.00 x 008	+8.25 -2.25 x 170
50*	+1.75 -1.00 x 180	+1.50 -1.25 x 180
51	+2.75 -1.50 x 005	+2.50 -2.25 x 174
52*	+1.25 -0.50 x 025	+1.25 -0.75 x 170
53*/**	-4.50 -0.50 x 095	-5.00 -0.50 x 130

Table 8: Refractive Error Distribution of Subjects, * indicates subject still present in year two, ** indicates subject fit in contact lenses

Domain	Overall Mean	Mean for Males	Mean for Females	Mean for Spectacle Group	Mean for CL Group
Scholastic Competence	3.22±0.66	3.27±0.70	3.20±0.70	3.23±0.74	3.20±0.60
Social Competence	2.74±0.86	2.60±0.20	2.82±1.07	2.88±0.66	2.47±1.30
Athletic Competence	2.13±0.83	2.00±0.35	2.20±1.02	2.37±0.87	1.67±0.61
Physical Appearance	2.47±0.95	1.87±0.46	2.77±1.01	2.73±0.82	1.93±1.14
Job Competence	3.29±0.63	2.93±0.64	3.47±0.59	3.20±0.70	3.47±0.50
Romantic Appeal	2.62±0.87	2.47±0.42	2.72±1.10	2.27±0.92	2.80±1.20
Behavioral Conduct	3.11±0.81	2.80±0.72	3.12±0.88	3.07±0.84	3.20±0.92
Close Friendships	2.69±0.83	2.27±0.23	2.72±0.95	2.86±0.62	2.53±1.21
Global Self-Worth	2.89±0.99	2.53±0.50	2.92±1.23	3.20±0.63	2.27±1.42

Table 9: Overall, gender-specific, and refractive error dependent initial SPPA means for subjects

When comparing the baseline data of the subjects to the cohort data several differences should be noted. Table 10 shows the overall differences in means between the initial subject results and cohort baseline. When comparing the overall means for the domains, the subjects in this study scored higher on the SPPA in the Scholastic Competence (3.22 vs. 2.77), and Behavioral Conduct (3.11 vs. 2.67) than the cohort. The subject group also demonstrated modestly higher scores in Job Competence (3.29 vs 3.05) than the cohort group. Overall the subjects showed slightly reduced scores in

Athletic Competence (2.13 vs 2.36) than the cohort. Global Self-Worth, Close Friendship, Romantic Appeal, and Physical Appearance were similar between the groups.

Domain	Overall Mean for cohort	Overall Mean for Subjects	Difference
Scholastic Competence	2.77±0.78	3.22±0.66	0.45
Social Competence	2.66±0.66	2.74±0.86	0.08
Athletic Competence	2.36±0.84	2.13±0.83	-0.23
Physical Appearance	2.51±0.98	2.47±0.95	-0.04
Job Competence	3.05±0.53	3.29±0.63	0.24
Romantic Appeal	2.59±0.64	2.62±0.87	0.03
Behavioral Conduct	2.67±0.67	3.11±0.81	0.44
Close Friendships	2.63±0.56	2.69±0.83	0.06
Global Self-Worth	2.85±0.68	2.89±0.99	0.04

Table 10: Differences in Overall Means between baseline subject SPPA results and baseline cohort

In the male population, men enrolled in the study showed higher scores in Scholastic Competence (3.27 vs 2.68) than the cohort males. Men in the study showed decreased scores in Athletic Competence (2.00 vs 2.50), and Physical Appearance (1.87 vs 2.78), with modestly lower scores in Close Friendship (2.27 vs 2.45) and Global Self-Worth (2.53 vs 2.80). These results are documented in Table 11.

Domain	Mean for Males in Cohort	Mean for Males in Study	Difference
Scholastic Competence	2.68±0.80	3.27±0.70	0.59
Social Competence	2.58±0.58	2.60±0.20	0.02
Athletic Competence	2.50±0.83	2.00±0.35	-0.50
Physical Appearance	2.78±0.86	1.87±0.46	-0.88
Job Competence	2.99±0.57	2.93±0.64	-0.06
Romantic Appeal	2.48±0.75	2.47±0.42	-0.01
Behavioral Conduct	2.40±0.65	2.80±0.72	0.40
Close Friendships	2.45±0.58	2.27±0.23	-0.18
Global Self-Worth	2.80±0.69	2.53±0.50	-0.27

Table 11: Initial differences in SPPA results for males enrolled in CLASP study and males in cohort group

The women enrolled in the study showed modestly higher results in Scholastic Competence (3.20 vs 2.85), Job Competence (3.47 vs 3.10), and Behavioral Conduct (3.12 vs 2.90) than the baseline cohort. All other domains were similar between the groups. These results are shown in Table 12 below.

Domain	Mean for Females in Cohort	Mean for Females in Study	Difference
Scholastic Competence	2.85±0.77	3.20±0.70	0.35
Social Competence	2.72±0.73	2.82±1.07	0.10
Athletic Competence	2.25±0.85	2.20±1.02	-0.05
Physical Appearance	2.27±1.03	2.77±1.01	0.50
Job Competence	3.10±0.50	3.47±0.59	0.37
Romantic Appeal	2.67±0.53	2.72±1.10	0.05
Behavioral Conduct	2.90±0.62	3.12±0.88	0.22
Close Friendships	2.78±0.50	2.72±0.95	-0.06
Global Self-Worth	2.89±0.68	2.92±1.23	0.03

Table 12: Initial differences in SPPA results for females enrolled in CLASP study and females in cohort group

Only five of the original nine subjects enrolled remained in the study for the follow-up administration of the SPPA. All four subjects who left the study were female, and 1 was in the contact lens group, leaving two subjects in the contact lens group and three in the spectacle group. Out of the remaining subjects 60% (n=3) are male, with a mean age of 16.20±0.84. The means for the subjects for each domain are shown in Table 29 in Appendix A. The overall means, gender-specific means, and means for the contact lens and glasses groups are shown below in Table 13. When comparing the results based on gender women scored higher in the Social Competence, Physical Appearance, Close Friendships, and Global Self-Worth domains. Men scored higher only in the Athletic Competence domain. When evaluating differences based on modalities of refractive error correction the contact lens group scored higher in the Social Competence, Physical Appearance, Job Competence, Romantic Appeal, Close Friendships, and Global Self-Worth domains.

Domain	Overall Mean	Mean for Males	Mean for Females	Mean for Spectacle Group	Mean of CL group
Scholastic Competence	3.00±0.87	3.07±0.83	2.90±1.27	2.93±1.01	3.10±0.99
Social Competence	2.72±1.08	2.60±1.04	2.90±1.56	2.53±1.10	3.00±1.41
Athletic Competence	1.96±0.52	2.27±0.42	1.50±0.14	1.93±0.61	2.00±0.57
Physical Appearance	2.28±0.98	1.80±0.20	3.00±1.41	1.93±0.12	2.80±1.70
Job Competence	2.60±0.62	2.60±0.35	2.60±1.13	2.27±0.50	3.10±0.42
Romantic Appeal	2.56±1.03	2.53±0.42	2.60±1.98	2.13±0.90	3.20±1.13
Behavioral Conduct	2.96±0.91	3.00±0.92	2.90±1.27	2.93±1.01	3.00±1.13
Close Friendships	2.64±0.73	2.53±0.61	2.80±1.13	2.53±0.61	2.80±1.13
Global Self-Worth	2.72±0.93	2.47±0.83	3.10±1.27	2.60±0.69	2.90±1.56

Table 13: Overall mean, gender-based mean, and refractive correction-based means for subjects on second administration of SPPA

Comparing the results of the follow up administration of the SPPA to the initial administration in the subject population there is a noted overall decrease in means in the Scholastic Competence (3.00 vs 3.22), Athletic Competence (1.96 vs 2.13), Physical

Appearance (2.28 vs 2.47), Job Competence (2.60 vs 3.29), Behavioral Conduct (2.96 vs 3.11), and Global Self-Worth (2.72 vs 2.89). These differences are noted in Table 14.

Domain	Overall Mean Initially	Overall Mean Follow Up	Difference
Scholastic Competence	3.22±0.66	3.00±0.87	-0.22
Social Competence	2.74±0.86	2.72±1.08	-0.02
Athletic Competence	2.13±0.83	1.96±0.52	-0.17
Physical Appearance	2.47±0.95	2.28±0.98	-0.19
Job Competence	3.29±0.63	2.60±0.62	-0.69
Romantic Appeal	2.62±0.87	2.56±1.03	-0.06
Behavioral Conduct	3.11±0.81	2.96±0.91	-0.15
Close Friendships	2.69±0.83	2.64±0.73	-0.05
Global Self-Worth	2.89±0.99	2.72±0.93	-0.17

Table 14: Differences in overall means for subjects at follow up and initial administration

In the male subject population modest improvements in Athletic Competence (2.27 vs 2.00) and Close Friendships (2.53 vs 2.27) occurred between years one and two. A decrease was noted in the Job Competence domain compared to the initial administration (2.60 vs 2.93). This is documented in Table 15.

Domain	Mean for Males Initially	Mean for Males Follow Up	Difference
Scholastic Competence	3.27±0.70	3.07±0.83	-0.20
Social Competence	2.60±0.20	2.60±1.04	0.00
Athletic Competence	2.00±0.35	2.27±0.42	0.27
Physical Appearance	1.87±0.46	1.80±0.20	-0.07
Job Competence	2.93±0.64	2.60±0.35	-0.33
Romantic Appeal	2.47±0.42	2.53±0.42	0.06
Behavioral Conduct	2.80±0.72	3.00±0.92	0.20
Close Friendships	2.27±0.23	2.53±0.61	0.26
Global Self-Worth	2.53±0.50	2.47±0.83	-0.06

Table 15: Differences in means for male subjects at follow up and initial administration

In the female subject population Physical Appearance modestly improved from baseline (3.00 vs 2.77) as did Global Self-Worth (3.10 vs 2.92). However, decreases were noted in Scholastic Competence (2.90 vs 3.20), Athletic Competence (1.50 vs 2.20), Job

Competence (2.60 vs 3.47), Romantic Appeal (2.60 vs 2.72), and Behavioral Conduct (2.90 vs 3.12) domains. These differences are documented in Table 16.

Domain	Mean for Females Initially	Mean for Females Follow Up	Difference
Scholastic Competence	3.20±0.70	2.90±1.27	-0.30
Social Competence	2.82±1.07	2.90±1.56	0.08
Athletic Competence	2.20±1.02	1.50±0.14	-0.70
Physical Appearance	2.77±1.01	3.00±1.41	0.23
Job Competence	3.47±0.59	2.60±1.13	-0.87
Romantic Appeal	2.72±1.10	2.60±1.98	-0.12
Behavioral Conduct	3.12±0.88	2.90±1.27	-0.22
Close Friendships	2.72±0.95	2.80±1.13	0.08
Global Self-Worth	2.92±1.23	3.10±1.27	0.18

Table 16: Differences in means for female subjects at follow up and initial administration

Focusing solely on the spectacle corrected group decreases in means were noted in all nine domains of the SPPA, with the largest decrease being in Job Competence (2.27 vs 3.20), and Physical Appearance (1.93 vs 2.73). These results are shown in Table 17.

Domain	Mean for Spectacle Group Initially	Mean for Spectacle Group Follow Up	Difference
Scholastic Competence	3.23±0.74	2.93±1.01	-0.30
Social Competence	2.88±0.66	2.53±1.10	-0.35
Athletic Competence	2.37±0.87	1.93±0.61	-0.44
Physical Appearance	2.73±0.82	1.93±0.12	-0.80
Job Competence	3.20±0.70	2.27±0.50	-0.93
Romantic Appeal	2.27±0.92	2.13±0.90	-0.14
Behavioral Conduct	3.07±0.84	2.93±1.01	-0.14
Close Friendships	2.86±0.62	2.53±0.61	-0.33
Global Self-Worth	3.20±0.63	2.60±0.69	-0.60

Table 17: Differences in means for spectacle corrected subjects at follow up and initial administration

The contact lens corrected group showed more diverse results than the spectacle group. Increases in Social Competence (3.00 vs 2.47), Athletic Competence (2.00 vs 1.67), Physical Appearance (2.80 vs 1.93), Romantic Appeal (3.20 vs 2.80), Close Friendships (2.80 vs 2.53), and Global Self-Worth (2.90 vs 2.27). Modest decreases were noted in the Scholastic Competence (3.10 vs 3.20), Job Competence (3.10 vs 3.47), and Behavioral Conduct (3.00 vs 3.20) domains. These results are documented in Table 18.

Domain	Mean for CL Group Initially	Mean of CL Group Follow UP	Difference
Scholastic Competence	3.20±0.60	3.10±0.99	-0.10
Social Competence	2.47±1.30	3.00±1.41	0.53
Athletic Competence	1.67±0.61	2.00±0.57	0.33
Physical Appearance	1.93±1.14	2.80±1.70	0.87
Job Competence	3.47±0.50	3.10±0.42	-0.37
Romantic Appeal	2.80±1.20	3.20±1.13	0.40
Behavioral Conduct	3.20±0.92	3.00±1.13	-0.20
Close Friendships	2.53±1.21	2.80±1.13	0.27
Global Self-Worth	2.27±1.42	2.90±1.56	0.63

Table 18: Differences in means for contact lens corrected subjects at follow up and initial administration

Chapter 4: Discussion

The initial vision screenings which served as the primary recruiting resource and inspiration for the CLASP study revealed an unmet need for eye care in the student population of FPA. In each year of vision screening, uncorrected refractive error and reduced distance visual acuities were the primary causes of failing the vision screening. Both failure criteria can be easily addressed through prescription eye glasses or contact lenses. Whether the high rate of uncorrected refractive error is due to a lack of access of care, or through not following up on screening referrals is beyond the scope of this study. However, studies have shown that minority populations, and individuals from lower socioeconomic backgrounds often lack refractive correction due to the economic burden posed by purchasing eye glasses (Qiu, 2014). The vision screening results should be interpreted with caution due to the small populations screened. Another potential source of concern came from school administrators bringing students they believed may have eye issues to the screenings which may have artificially inflated the referral rates that this study presents.

The decision to perform a Rasch analysis on the SPPA is, to the best knowledge of the author, a novel concept. Harter (2012) reports Cronbach's alpha to prove the unidimensionality of the SPPA. The limitation faced by Cronbach's alpha is that it relies on correlation coefficients between items and may not be able to document redundancy. In order to account for redundancy, and to evaluate the items and domains in a more detailed fashion a Rasch analysis should be employed.

An initial Rasch analysis performed on all items within the SPPA showed a high PSI (3.38), indicating that the SPPA can reliably be used to rank individuals who take the survey. The ISI being above 2.00 (2.47 in this case) shows that the individual items can be reliably separated and ranked, indicating a lack of redundancy. The Eigenvalue of the 1st principal contrast being above a 2.00 (6.1 in this case) implies that the SPPA is a multidimensional instrument as would be expected.

When evaluating the SPPA through a Rasch analysis on each separate domain several important points should be noted. Out of nine domains, only Athletic Competence, Physical Appearance, and Scholastic Competence meet the PSI criteria of being higher than 2.00 to signify reliable ranking. Out of these three domains, only Physical Appearance and Scholastic Competence met the 2.00 criteria for the ISI. All three of these domains had Eigenvalues for the 1st principal contract below 2.00, which indicates unidimensionality to each domain as one would anticipate. These findings seem to imply that the domains that did not reach the 2.00 criteria for the PSI may not have a sufficient number of items to reliably separate individuals. Future studies should be focused on potentially combining like domains in order to improve the PSI for those domains which failed to reach criteria.

It is interesting to note the differences in the SPPA results that occurred between the baseline cohort and the initial subjects. Overall the subjects who enrolled in the study had higher Scholastic Competence and Behavioral Competence than their peers at the initial administration of the SPPA. This elevated score is present even when evaluating the SPPA by genders. The elevated academic competency seems to play into the

stereotype of glasses making an individual appear more intelligent. The cause of the elevated Behavior Competence scores compared to the baseline cohort has no apparent etiology, and any attempt to answer this would be purely conjecture.

When comparing male subjects to their male cohorts it is important to note that these males had noticeably lower scores in the Athletic Competence and Physical Appearance, with a modestly lower Global Self-Worth score. One could reason that perhaps these male subjects may have lower Athletic Competencies due to physiological blur that could occur due to uncorrected refractive error. This may also be attributable to eye glasses limiting athletic activity, whether through falling off one's face, lenses fogging, or lenses becoming dirtied by sweat. The decrease in Physical Appearance may be correlated to the lower athletic score and may also be associated with negative physical connotations associated with wearing eye glasses (Terry, 1990).

Interestingly, females enrolled in the study showed elevated Physical Appearance scores when compared to their cohorts. Unlike in the male population this cannot be explained through the traditional thought of eye glasses having negative effects on appearance. While purely conjecture, this increase may be due to a cultural shift regarding the effects on physical appearance from refractive correction, or these women may just be more confident in their appearance than others.

After a year of treatment with eye glasses and contact lenses the results from the SPPA were not as originally anticipated. Overall, those who remained enrolled in the CLASP study scored lower across all domains except Social Competence, Romantic Appeal, and Close Friendships compared to their baseline measures. Social Competence,

Romantic Appeal, and Close Friendships all remained relatively stable. These decreases may be secondary to the noticeable decreases across all domains that were noted in the spectacle corrected group at the follow up visit.

The spectacle corrected group showed decreases in all domains of the SPPA at follow up, but the largest decreases were noted in Physical Appearance, Job Competency, and Global Self-Worth. These decreases seem to indicate that eye glasses do tend to have negative effects on physical appearance. However, this study does not account for other life events, or changes that could elicit negative effects on one's self-perception. The decrease in the Job Competence domain has no apparent refractive error-related explanation as individuals wearing spectacles have been perceived as more competent for work tasks (Terry, 1989).

The contact lens group showed increases in the Social Competence, Athletic Competence, Physical Appearance, Romantic Appeal, Close Friendship, and Global Self-Worth domains when compared to baseline. Peculiarly this group also demonstrated decreases in Scholastic Competence, Job Competence, and Behavioral Conduct. The increase in Physical Appearance may be attributed to wearing contact lenses, as opposed to eye glasses, which has been demonstrated in the past (Walline, 2009). This increased confidence in one's appearance may in turn make one more likely to socialize, which may also increase one's precept of their romantic appeal. The increase in Athletic Competence may be secondary to the physical freedom from spectacle lenses that contact lenses provide. In this case one would not have to be concerned with glasses getting in the way of physical activities. This study cannot determine if the increase in Global Self-

Worth is solely due to the ability to wear contact lenses, or if this increase stems from other events occurring in the lives of the subjects. As with the spectacle corrected group it is important to interpret these results with caution, as this reflects a small treatment population in a unique environment.

The gender differences in the performance on the SPPA at follow up show a few surprising trends. The first trend is that both male and female subjects experienced a decrease in Scholastic Competence a year after enrollment in the study. Both genders also experience decreases in Job Competence. The decrease in Scholastic Competence may be secondary to the increasing difficulty of classes and subject mattered as one proceeds through high school. This finding is inconsistent with previous studies where at least contact lens correction led to increased Academic Competence (Walline, 2009). Regarding Global Self-Worth, in males this remained relatively stable after refractive correction, and female subjects saw a modest improvement.

All the trends noted regarding the changes in SPPA scores should be interpreted with caution. As can be seen in the tables displaying the mean data, the standard deviations for the subject results were large. This indicates considerable variability in how subjects answered the SPPA items. Even within the cohort data standard deviations were larger than would be desired. Likely with a larger sample population, and larger subject pool these standard deviations could be reduced, providing more accurate data.

While the data obtained from this study is inconclusive at this time, there are a few allegorical details which provide insight to the positive effects this study has had on the subjects. There were multiple accounts of a member of the study being stopped while

at FPA and thanked for giving spectacle correction to one of the subjects. The teacher was thrilled that the subject was now able to read her sheet music more easily during class and was paying much more attention than she previously had. Another positive effect on a subject was fitting contact lenses on this subject who had a refractive error of +7.00D. As soon as the subject had contact lenses on his eyes and could clearly see he was amazed about being able to see the world without "bricks" on his face. A more unexpected outcome of the comprehensive exams during recruitment came from a 12-year-old male patient who complained of headaches, especially when laying down. During a dilated fundus examination it was discovered this patient had bilateral edema of the optic nerve head, and the patient was referred to a neuro-ophthalmologist for further evaluation. The patient received a spinal tap, confirming a diagnosis of idiopathic intracranial hypertension. Had this patient not presented for this exam he may have gone without treatment, and long-term damage may have been caused to the brain and optic nerve.

While we have demonstrated through narratives that positive outcomes have been noted by the subjects enrolled in the study, this study has not been without its limitations. One of the largest hurdles faced during this study has been in recruiting subjects. A great majority of the students enrolled at FPA come from lower socioeconomic backgrounds. This population often times either lacks access to or may not prioritize basic routine medical care on the same scale as higher socioeconomic classes do (Knighton, 2018). There also exist common barriers in lower socioeconomic groups to receiving eye care. Commonly found barriers include the cost of receiving eye care, especially regarding

affording spectacles, lack of vision or health insurance (Chou, 2014), and the difficulty of scheduling with an eye care practitioner due to long wait times and limited availability outside of traditional work hours (Yawn, 1998).

This was reflected in the difficulty of recruiting subjects with the sole incentive of receiving free comprehensive vision exams and the possibility of receiving contact lenses for a year. Even when assent was granted by potential subjects, it was often difficult to obtain parental consent for the child to be enrolled in the study. It was not uncommon for parents to be leery of, or hesitant to allow their child to become enrolled when the study was presented by members of the research team. This hesitation may be due to a common lack of awareness of the need for routine eye care and refractive correction in low-income and minority groups (Zhang, 2012). Recruitment improved when administrators from the school were asked to assist in presenting the study to parents and children.

A very noticeable difficulty this study has been facing is poor subject retention. Nearly half of the subjects initially recruited broke their enrollment to the study. Of those who left the study, one moved to a neighboring state, two ended their enrollment at FPA, and one was consistently unavailable to complete the follow up SPPA. This certainly had some influence on the large standard deviations noted on the second administration of the SPPA and may have been part of some of the unexpected effects noted. This may also be secondary to the often fluid enrollment of the student population of FPA.

Recruitment and interest in the CLASP study, while initially low, improved after enrolling the assistance of the FPA staff and administration. Initially only members of the CLASP study would reach out to parents through phone calls, referral paperwork, and

consent forms to try and set up eye examinations with potential subjects with parental consent. During this early phase it was often difficult to get parental consent, which may have been secondary to a perceived lack of need for eye care for their children, or skepticism over the free nature of the treatment. In order to improve communication with parents the FPA staff and administration were thoroughly educated on the nature of the CLASP Study and were given advice on how to present the study to students and parents alike. Health literacy, and literacy in general, may have limited parents' abilities to read and understand the consent and information forms. The FPA staff were available to explain the CLASP study to parents, at times even verbally to improve understanding. The CLASP study also made an agreement with FPA to allow potential recruits to the study to come to the Lower Lights clinic during school hours in order to improve attendance to eye exams. All these methods greatly increased recruitment efforts and helped to establish greater trust between the CLASP study and the FPA community.

As the CLASP study moves into its second year of data collection there are several recommendations to improve the data collection. The first recommendation is the collection and analysis of the I-Ready test results for subjects in order to determine what, if any, effects refractive correction has had on academic performance. On a basis of logistics, a more concrete timeline for administering the SPPA should be considered. Adding a standardized interview of the subjects in the study should be considered in order to augment, or to add additional context to the SPPA results. A standardized interview could also help determine the subjects' own opinions on what if any changes the study has made in their lives. A final additional measure that may be considered for

addition would be utilizing the National Eye Institute – Vision Function Questionnaire (NEI-VFQ) for more information regarding vision-specific quality of life. The NEI-VFQ also would allow the addition of a power measurement to look for what sample size might be required to find statistical significance.

In conclusion, while the results of the SPPA has produced inconclusive results, there is anecdotal evidence to suggest that the CLASP study has had positive effects on the lives of the subjects enrolled in the study. Future efforts should be focused on improving subject retention, increasing enrollment to the study, and examining the academic performance of subjects.

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Appendix A: SPPA Results

			Item					Mean
Subject Number	Sex	Age (Yr)	1	10	19	28	37	
1	M	16	2	3	3	4	4	3.20
2	F		3	4	4	3	4	3.60
3	M	15	2	4	4	3	3	3.20
4	M	14	4	3	3	2	4	3.20
6	F	16	4	3	4	2	3	3.20
8	F	16	3	4	4	3	4	3.60
9	F	15	2	2	2	2	2	2.00
11	F	16	1	1	1	1	1	1.00
12	F	15	4	3	4	3	4	3.60
13	F	16	3	3	4	3	4	3.40
14	M	17	1	1	1	1	4	1.60
15	F	14	1	2	2	1	2	1.60
16	F	16	4	3	4	3	4	3.60
17	F	15	4	2	4	2	4	3.20
19	F	15	2	3	3	3		2.75
20	M	16	2	2	2	2	1	1.80
21	F	14	4	4	1	3	1	2.60
22	F	16	2	2	3	1	2	2.00
23	M	16	3	2	3	3	3	2.80
25	M	16	4	3	4	2	4	3.40
26	F	15	2	2	4	4	4	3.20
27	F	16	3	3	3	3	3	3.00
28	M	17	3	1	1	1	1	1.40
29	M	16	3	2	3	3	3	2.80
31	M	15	4	4	4	3	3	3.60
32	F	14	2	2	3	1	4	2.40
33	F	14	2	1	3	3	3	2.40
34	M	14	3	2	2	2	4	2.60
35	F	17	2	3	3	2	4	2.80
36	M	15	2	1	2	1	1	1.40
39	M	16	2	4	4	4	3	3.40
40	M	16	1	1	2		3	1.75
41	M	16	4	3	2	3	3	3.00
42	M		3	2	2	3	2	2.40
43	M	15	2	1	3	1	3	2.00
44	F	15	2	1	1	2	4	2.00
45	F	16	4	4	4	3	4	3.80
46	F	16	3	3	4	4	4	3.60
47	M	16	3	4	4	4	4	3.80
48	M	15	4	3	4	3	4	3.60
49	F	18	2	4	4	3	4	3.40

Table 19: Scholastic Competence of Baseline Cohort

			Item					Mean
Subject Number	Sex	Age (Yr)	2	11	20	29	38	
1	M	16	3	2	3	3	2	2.60
2	F		4	4	4	3	3	3.60
3	M	15		3	2	3	3	2.75
4	M	14	2	3	1	4	3	2.60
6	F	16	1	1	2	2	1	1.40
8	F	16	4	3	4	3	4	3.60
9	F	15	2	2	3	2	3	2.40
11	F	16	3	3	3	3	1	2.60
12	F	15	4	2	3	3	3	3.00
13	F	16	4	2	4	4	3	3.40
14	M	17	4	4	4	4	2	3.60
15	F	14	1	2	1	2	2	1.60
16	F	16	3	3	4	3	1	2.80
17	F	15	3	4	4	4	4	3.80
19	F	15	2	2	3	3	2	2.40
20	M	16	1	1	1	1	1	1.00
21	F	14	4	4	3	4	4	3.80
22	F	16	1	2	1	4	1	1.80
23	M	16	2	3	3	2	4	2.80
25	M	16	3	3	4	3	4	3.40
26	F	15	4	2	4	4	2	3.20
27	F	16	2	1	1	2	2	1.60
28	M	17	3	1	2	1	3	2.00
29	M	16	3	3	3	3	3	3.00
31	M	15	1	2	4	4	3	2.80
32	F	14	4	1	4	1	4	2.80
33	F	14	4	4	3		2	3.25
34	M	14	2	2	2	3	2	2.20
35	F	17	4	1	4	3	2	2.80
36	M	15	3	2	4	1	4	2.80
39	M	16	2	3	3	3	2	2.60
40	M	16	3	3		3	3	3.00
41	M	16	2	2	3	3	2	2.40
42	M		4	2		2	3	2.75
43	M	15	3	2	3	4	2	2.80
44	F	15		3	1	4	1	2.25
45	F	16	2	3	2	3	2	2.40
46	F	16	2	3	2	2	2	2.20
47	M	16	1	2	2	2	2	1.80
48	M	15	2	2	2	3	2	2.20
49	F	18	4	4	1	4	3	3.20

Table 20: Social Competence of baseline cohort

			Item					Mean
Subject Number	Sex	Age (Yr)	3	12	21	30	39	
1	M	16	2	3	3	4	3	3.00
2	F		4	4	4	4	4	4.00
3	M	15	3	3	2	2	2	2.40
4	M	14	3	3	4	4	4	3.60
6	F	16	2	1	1	3	2	1.80
8	F	16	2	2	2	2	1	1.80
9	F	15	3	2	2	2	3	2.40
11	F	16	1	1	1	3	1	1.40
12	F	15	4	4	3	3	4	3.60
13	F	16	1	2	2	3	2	2.00
14	M	17	4	3	2	4	2	3.00
15	F	14	1	2	1	2	1	1.40
16	F	16	2	1	1	3	4	2.20
17	F	15	4	2	2	4	4	3.20
19	F	15	1	2	2	2	2	1.80
20	M	16	1	1	1	2		1.25
21	F	14	2	2	1	1	2	1.60
22	F	16	1	3	1	1	2	1.60
23	M	16	4	4	4	3	4	3.80
25	M	16	4	3	4	4	4	3.80
26	F	15	2	1	2	4	1	2.00
27	F	16	3	2	3	2	2	2.40
28	M	17	1	1	4	3	1	2.00
29	M	16	3	3	3	3	3	3.00
31	M	15	1	4	1	3		2.25
32	F	14	1	3	1	4	4	2.60
33	F	14	4	1	3	4		3.00
34	M	14	2	3	2	3	2	2.40
35	F	17	2	1	1	2	2	1.60
36	M	15	4	4	3		2	3.25
39	M	16	2	2	2	2	2	2.00
40	M	16	2	2	3	2	2	2.20
41	M	16	1	1	1	2	1	1.20
42	M		3	3		2	3	2.75
43	M	15	3	3	2	3	3	2.80
44	F	15	1	1	1	1	1	1.00
45	F	16	2	3	2	3	2	2.40
46	F	16	1	2	2	2	1	1.60
47	M	16	1	1	1	3	1	1.40
48	M	15	1	1	1	2	2	1.40
49	F	18	4	4	4	4	4	4.00

Table 21: Athletic Competence of baseline cohort

			Item					Mean
Subject Number	Sex	Age (Yr)	4	13	22	31	40	
1	M	16	3	4	4	4	4	3.80
2	F		4	3	4	4	4	3.80
3	M	15	3	3	3	3	3	3.00
4	M	14	4	4	4	4	4	4.00
6	F	16	1	1	1	1	1	1.00
8	F	16	4	4	4	4	4	4.00
9	F	15	1	1	1	2	2	1.40
11	F	16	1	1	1	1	1	1.00
12	F	15	3	3	3	3	3	3.00
13	F	16	4	4	4	4	4	4.00
14	M	17	4	1	1	1	1	1.60
15	F	14	2	1	1	1	1	1.20
16	F	16	2	1	1	1	1	1.20
17	F	15	4	2	2	4	4	3.20
19	F	15	2	1	1	2	2	1.60
20	M	16	1	1	1	1	1	1.00
21	F	14	4	4	3	1	4	3.20
22	F	16	2	1	1	1	2	1.40
23	M	16	3	4	3	4		3.50
25	M	16	4	4	4	4	4	4.00
26	F	15	4	1	3	2	3	2.60
27	F	16	1	2	1	2	2	1.60
28	M	17	4	4	1	2	3	2.80
29	M	16	3	3	3	3	3	3.00
31	M	15	4	1	4	4	1	2.80
32	F	14	4	2	2	2	2	2.40
33	F	14	2	3	2	3	3	2.60
34	M	14	3	4	3	2	3	3.00
35	F	17	4	1	3	3	3	2.80
36	M	15		3	2	4	2	2.75
39	M	16	1	1	2	1	1	1.20
40	M	16	2			4	2	2.67
41	M	16	4	4	3	3	3	3.40
42	M		4	4	3	2	3	3.20
43	M	15	3	2	2	2	3	2.40
44	F	15	1	1	1	1	1	1.00
45	F	16	2	2	1	2	3	2.00
46	F	16	1	1	2	2	2	1.60
47	M	16	1	2	2	2	2	1.80
48	M	15	3	3	3	2	3	2.80
49	F	18	2	4	3	4	4	3.40

Table 22: Physical appearance of baseline cohort

			Item					Mean
Subject Number	Sex	Age (Yr)	5	14	23	32	41	
1	M	16	4	4	3	1	4	3.20
2	F		4	4	4	2	4	3.60
3	M	15	4	3	4	2	3	3.20
4	M	14	4	4	4	2	4	3.60
6	F	16	3	2	4	1	4	2.80
8	F	16	3	3	4	3	3	3.20
9	F	15	2	3	3	2	2	2.40
11	F	16	3	3	2	2	4	2.80
12	F	15	4	4	4	3	4	3.80
13	F	16	4	4	4	1	4	3.40
14	M	17	4	2	4	1	4	3.00
15	F	14	4	3	4	4	4	3.80
16	F	16	4	4	3	1	4	3.20
17	F	15	4	3	4	4	4	3.80
19	F	15	2	3	3	3	3	2.80
20	M	16		2	2	2	1	1.75
21	F	14	3	4	4	4	1	3.20
22	F	16	2	1	4	4	3	2.80
23	M	16	3	2	3	2	2	2.40
25	M	16	3	4	3	3	4	3.40
26	F	15	4	4	3	2	3	3.20
27	F	16	3	4	2	3	2	2.80
28	M	17	4	4	4	3	4	3.80
29	M	16	3	3	3	2	3	2.80
31	M	15	4	4	1	3	2	2.80
32	F	14	3	2	3	1	3	2.40
33	F	14	4	2	3		2	2.75
34	M	14	4	3	3	3	3	3.20
35	F	17	4	1	4	3	4	3.20
36	M	15	3	1	3	2	1	2.00
39	M	16	4	3	4	2	4	3.40
40	M	16	3	2	4	1	2	2.40
41	M	16		3	3	3	3	3.00
42	M		4	2	3	3	3	3.00
43	M	15	3	2	3	2	3	2.60
44	F	15	1	1	1	4	4	2.20
45	F	16	3	3	4	4	4	3.60
46	F	16	2	2	3	3	3	2.60
47	M	16	4	4	4	1	4	3.40
48	M	15	4	4	4	3	4	3.80
49	F	18	4	4	4	4	3	3.80

Table 23: Job Competence of baseline cohort

			Item					Mean
Subject Number	Sex	Age (Yr)	6	15	24	33	42	
1	M	16	3	3	3	3	2	2.80
2	F		4	4	4	4	4	4.00
3	M	15	4	3	3	2	3	3.00
4	M	14	3	3	1	3	3	2.60
6	F	16	1	3	2	1	4	2.20
8	F	16	3	4	3	1	2	2.60
9	F	15	2	2	2	3	2	2.20
11	F	16	1	3	1	1	3	1.80
12	F	15	3	4	3	3	3	3.20
13	F	16	3	4	3	4	3	3.40
14	M	17	1	1	1	1	4	1.60
15	F	14	2	3	1	2	3	2.20
16	F	16	3	4	3	4	1	3.00
17	F	15	4	3	4	1	4	3.20
19	F	15	1	3	2	1	2	1.80
20	M	16	1	4	2	1	4	2.40
21	F	14	2	4	1	3	3	2.60
22	F	16	1	4	1	1	4	2.20
23	M	16	3	4	2	2	4	3.00
25	M	16	4	4	4	4	4	4.00
26	F	15	2	4	2	4	2	2.80
27	F	16	3	3	3	2	3	2.80
28	M	17	2	1	1	1	1	1.20
29	M	16	3	3	2	3	2	2.60
31	M	15	1	2	3	3	2	2.20
32	F	14	4	4	1	3	1	2.60
33	F	14	2	3	2	3	2	2.40
34	M	14	2	2	2	2	2	2.00
35	F	17	2	3	2	4	2	2.60
36	M	15	4	3	4	1	3	3.00
39	M	16	3	4	3	3	4	3.40
40	M	16	3	2	3	3	2	2.60
41	M	16	1	3	3	2	3	2.40
42	M		3	4	3	3	2	3.00
43	M	15	3	3	3	3	2	2.80
44	F	15	2	4	2	1	4	2.60
45	F	16	2	3	3	2	3	2.60
46	F	16	1	4	3	2	4	2.80
47	M	16	1	1	1	1	1	1.00
48	M	15	1	1	2	2	2	1.60
49	F	18	2	4	3	4	3	3.20

Table 24: Romantic Appeal of baseline cohort

			Item					Mean
Subject Number	Sex	Age (Yr)	7	16	25	34	43	
1	M	16	4	4	4	3	4	3.80
2	F		3	3	3	1	3	2.60
3	M	15	3	1	3	3		2.50
4	M	14	3	1	4	1	2	2.20
6	F	16	1	3	2	1	4	2.20
8	F	16	3	4	4	4	4	3.80
9	F	15	1	2	3	2	2	2.00
11	F	16	2	3	1	3	2	2.20
12	F	15	4	3	2	3	3	3.00
13	F	16	3	3	4	2	4	3.20
14	M	17	3	1	1	1	4	2.00
15	F	14	3	3	2	3	3	2.80
16	F	16	2	3	4	3	4	3.20
17	F	15	1	1	3	1	2	1.60
19	F	15	1	3	2	3	2	2.20
20	M	16	2	1	2	1	2	1.60
21	F	14	4		1	3	4	3.00
22	F	16	4	2	2	3	4	3.00
23	M	16	2	2	3	2	2	2.20
25	M	16	3	2	4	2	4	3.00
26	F	15	2	2	4	4	4	3.20
27	F	16	3	2	4	2	3	2.80
28	M	17	2	1	1	1	2	1.40
29	M	16	2	2	3	2	2	2.20
31	M	15	1	1	1	3	1	1.40
32	F	14	2		4	4	4	3.50
33	F	14	3	1	3	3	3	2.60
34	M	14	3	3	3	2	3	2.80
35	F	17	4	2	2	4	4	3.20
36	M	15	4	3	1	2	3	2.60
39	M	16	2	2	2	2	3	2.20
40	M	16	4	3	3	1		2.75
41	M	16	3	4	4	3	3	3.40
42	M		3	1	3	3	2	2.40
43	M	15	2	1	2	2	3	2.00
44	F	15	3	1	4	2	4	2.80
45	F	16	4	4	4	4	4	4.00
46	F	16	3	3	3	2	3	2.80
47	M	16	1	2	3	2	2	2.00
48	M	15	3	3	4	3	3	3.20
49	F	18	4	4	4	4	4	4.00

Table 25: Behavioral Conduct of baseline cohort

			Item					Mean
Subject Number	Sex	Age (Yr)	8	17	26	35	44	
1	M	16	2	4	3	2	2	2.60
2	F		2	1	4	1	2	2.00
3	M	15	2	2	3	2	3	2.40
4	M	14	1	1	1	1	1	1.00
6	F	16	4	3	3	2	1	2.60
8	F	16	4	1	4	2	3	2.80
9	F	15	4	3	3	2	2	2.80
11	F	16	4	3	3	1	4	3.00
12	F	15	3	3	3	3	3	3.00
13	F	16	4	4	4	4	4	4.00
14	M	17	4	1	4	1	1	2.20
15	F	14	3	4	3	3	3	3.20
16	F	16	3	2	4	2	1	2.40
17	F	15	3	4	4	2	4	3.40
19	F	15	1	4	2	1	3	2.20
20	M	16	3	4	3	1	4	3.00
21	F	14	4	1	1	3	4	2.60
22	F	16	1	1	3	1	4	2.00
23	M	16	2	1	4	4	1	2.40
25	M	16	3	1	4	1	4	2.60
26	F	15	4	4	4	4	2	3.60
27	F	16	1	4	3	1	3	2.40
28	M	17	4	4	4	4	2	3.60
29	M	16	2	3	2	2	2	2.20
31	M	15	4	1	4	2	2	2.60
32	F	14	3	2	4	2	1	2.40
33	F	14	2	2	3	2	3	2.40
34	M	14	2	1	2	1	2	1.60
35	F	17	4	1	4	1	3	2.60
36	M	15	2	1	4	1		2.00
39	M	16	2	3	3	1	3	2.40
40	M	16		3				3.00
41	M	16	4	3	2	3	3	3.00
42	M		3	3	3	2	2	2.60
43	M	15	3	3	4	3	2	3.00
44	F	15	1	4	4	2	4	3.00
45	F	16	4	2	3	1	3	2.60
46	F	16	3	4	3	2	3	3.00
47	M	16	2	2	2	2	2	2.00
48	M	15	2	3	3	2	2	2.40
49	F	18	2	4	4	2	4	3.20

Table 26: Close Friendship for baseline cohort

			Item					Mean
Subject Number	Sex	Age (Yr)	9	18	27	36	45	
1	M	16	4	4	3	4	4	3.80
2	F		4	4	4	4	4	4.00
3	M	15	3	3	3	3	3	3.00
4	M	14	4	3	4	4	4	3.80
5	F	15	2	2	3	2	2	2.20
6	F	16	1	3	2	4	1	2.20
8	F	16	4	3	4	4	4	3.80
9	F	15	1	3	2	2	2	2.00
11	F	16	1	1	2	3	1	1.60
12	F	15	2	4	3	3	3	3.00
13	M	16	4	3	4	4	4	3.80
14	F	17	1	4	1	4	2	2.40
15	F	14	2	3	2	1	2	2.00
16	F	16	4	4	3	4	4	3.80
17	F	15	2	2	4	4	4	3.20
19	M	15	2	3	4	3	3	3.00
20	F	16	1	2	1	3	1	1.60
21	F	14	4	4	3	1	4	3.20
22	M	16	1	3	3	4	4	3.00
23	M	16	4	2	3	4	4	3.40
25	F	16	4	4	4	4	4	4.00
26	F	15	4	3	4	3	4	3.60
27	M	16	1	3	3	4	2	2.60
28	M	17	2	1	3	3	1	2.00
29	M	16	2	3	3	3	3	2.80
31	F	15	4	4	1	4	1	2.80
32	F	14	2	4	1	2	4	2.60
33	M	14	2	3	2	2	3	2.40
34	F	14	3	2	3	3	3	2.80
35	M	17	2	4	2	3	4	3.00
36	M	15	3	2	2	2	1	2.00
39	M	16	2	2	2	2	2	2.00
40	M	16	2	2	3	2	4	2.60
41	M	16	3	2	4	4	4	3.40
42	M		4	2	3	2	3	2.80
43	F	15	2	2	4	3	3	2.80
44	F	15	1	1	2	4	4	2.40
45	F	16	3	4	3	4	3	3.40
46	M	16	2	3	2	2	2	2.20
47	M	16	2	1	3	2	2	2.00
48	F	15	3	3	3	3	4	3.20
49	M	18	3	4	3	3	4	3.40

Table 27: Global Self-Worth of baseline cohort

Subject Number	Sex	Age (Yr)	Scholastic Competence	Social Competence	Athletic Competence	Physical Appearance	Job Competence	Romantic Appeal	Behavioral Conduct	Close Friendship	Global Self-Worth
7	M	14	4	2.8	2.2	1.6	2.2	2	2.6	2.56	3
18*	F	16	3.2	1.2	1	1	3	1.6	3.4	1.4	1
24	F	15	3.8	3.5	3.6	4	4	3.8	3.2	3.4	4
30	F	16	2.8	2.6	2.2	3.2	2.8	2.2	1.6	2.8	3.6
38*	M	14	2.6	2.4	2.2	1.6	3.4	2.8	2.2	2.4	2
50	F	15	2	2	1.4	2.4	3	2	3.8	2.2	2.4
51	F	16	3.6	3.8	3.2	2.8	4	1	3.6	3.8	3.6
52	M	16	3.2	2.6	1.6	2.4	3.2	2.6	3.6	2.4	2.6
53*	F	17	3.8	3.8	1.8	3.2	4	4	4	3.8	3.8

Table 28: Initial SPPA results for subjects; * indicates subject fit in contact lenses

Subject Number	Sex	Age (Yr)	Scholastic Competence	Social Competence	Athletic Competence	Physical Appearance	Job Competence	Romantic Appeal	Behavioral Conduct	Close Friendship	Global Self-Worth
7	M	15	4	3.8	2.6	2	2.8	3	4	3.2	3.4
38*	M	16	2.4	2	2.4	1.6	2.8	2.4	2.2	2	1.8
50	F	16	2	1.8	1.4	2	1.8	1.2	2	2	2.2
52	M	17	2.8	2	1.8	1.8	2.2	2.2	2.8	2.4	2.2
53*	F	17	3.8	4	1.6	4	3.4	4	3.8	3.6	4
*	Contact lens subject										

Table 29: Second SPPA administration results for subjects by domain

			Item					Mean
Subject Number	Sex	Age (Yr)	1	10	19	28	37	
7	M	14	4	4	4	4	4	4.00
18*	F	16	3	3	3	3	4	3.20
24	F	15	4	3	4	4	4	3.80
30	F	16	2	3	3	4	2	2.80
38*	M	14	3	2	3	2	3	2.60
50	F	15	2	2	3	1	2	2.00
51	F	16	3	3	4	4	4	3.60
52	M	16	4	3	3	3	3	3.20
53*	F	17	3	4	4	4	4	3.80

Table 30: Initial Scholastic Competence Results for Subjects; *denotes subject fit in contact lenses

			Item					Mean
Subject Number	Sex	Age (Yr)	2	11	20	29	38	
7	M	14	2	3	2	4	3	2.80
18*	F	16	1	1	1	2	1	1.20
24	F	15		3	4	4	3	3.50
30	F	16	2	2	4	4	1	2.60
38*	M	14	3	2	2	3	2	2.40
50	F	15	3	2	2	1	2	2.00
51	F	16	4	3	4	4	4	3.80
52	M	16	2	3	2	3	3	2.60
53*	F	17	4	4	4	4	3	3.80

Table 31: Initial Social Competence Results for Subjects; *denotes subject fit in contact lenses

			Item					Mean
Subject Number	Sex	Age (Yr)	3	12	21	30	39	
7	M	14	3	2	3	1	2	2.20
18*	F	16	1	1	1	1	1	1.00
24	F	15	3	4	3	4	4	3.60
30	F	16	1	2	2	4	2	2.20
38*	M	14	2	2	2	3	2	2.20
50	F	15	1	2	1	1	2	1.40
51	F	16	3	3	2	4	4	3.20
52	M	16	2	1	1	3	1	1.60
53*	F	17	1	2	2	2	2	1.80

Table 32: Initial Athletic Competence Results for Subjects; *denotes subject fit in contact lenses

			Item					Mean
Subject Number	Sex	Age (Yr)	4	13	22	31	40	
7	M	14	2	1	1	2	2	1.60
18*	F	16	1	1	1	1	1	1.00
24	F	15	4	4	4	4	4	4.00
30	F	16	3	3	2	4	4	3.20
38*	M	14	2	1	1	2	2	1.60
50	F	15	3	2	2	2	3	2.40
51	F	16	3	2	3	3	3	2.80
52	M	16	2	3	3	2	2	2.40
53*	F	17	4	2	2	4	4	3.20

Table 33: Initial Physical Appearnace Results for Subjects; *denotes subject fit in contact lenses

			Item					Mean
Subject Number	Sex	Age (Yr)	5	14	23	32	41	
7	M	14	4	1	2	3	1	2.20
18*	F	16	4	2	3	3	3	3.00
24	F	15	4	4	4	4	4	4.00
30	F	16	1	4	4	4	1	2.80
38*	M	14	4	4	3	2	4	3.40
50	F	15	4	3	3	2	3	3.00
51	F	16	4	4	4		4	4.00
52	M	16	4	3	4	1	4	3.20
53*	F	17	4	4	4	4	4	4.00

Table 34: Initial Job Competence Results for Subjects; *denotes subject fit in contact lenses

			Item					Mean
Subject Number	Sex	Age (Yr)	6	15	24	33	42	
7	M	14	2	1	1	3	3	2.00
18*	F	16	1	4	1	1	1	1.60
24	F	15	4	4	3	4	4	3.80
30	F	16	1	4	1	1	4	2.20
38*	M	14	3	4	2	2	3	2.80
50	F	15	2	2	3	1	2	2.00
51	F	16	1					1.00
52	M	16	2	4	2	3	2	2.60
53*	F	17	4	4	4	4	4	4.00

Table 35: Initial Romantic Appeal Results for Subjects; *denotes subject fit in contact lenses

			Item					Mean
Subject Number	Sex	Age (Yr)	7	16	25	34	43	
7	M	14	4	2	2	2	3	2.60
18*	F	16	4	4	2	4	3	3.40
24	F	15	3	2	4	3	4	3.20
30	F	16	1	1	4	1	1	1.60
38*	M	14	3	2	1	2	3	2.20
50	F	15	4	4	3	4	4	3.80
51	F	16	3	3	4	4	4	3.60
52	M	16	4	4	4	3	3	3.60
53*	F	17	4	4	4	4	4	4.00

Table 36: Initial Behavioral Conduct Results for Subjects; *denotes subject fit in contact lenses

			Item					Mean
Subject Number	Sex	Age (Yr)	8	17	26	35	44	
7	M	14	2	2	2	2	2	2.00
18*	F	16	1	1	2	1	2	1.40
24	F	15	4	3	4	2	4	3.40
30	F	16	3	4	3	1	3	2.80
38*	M	14	2	2	2	2	4	2.40
50	F	15	2	2	2	2	3	2.20
51	F	16	4	4	4	3	4	3.80
52	M	16	3	1	3	2	3	2.40
53*	F	17	4	4	4	3	4	3.80

Table 37: Initial Close Friendship Results for Subjects; *denotes subject fit in contact lenses

			Item					Mean
Subject Number	Sex	Age (Yr)	9	18	27	36	45	
7	M	14	2	2		4	4	3.00
18*	F	16	1	1	1	1	1	1.00
24	F	15	4	4	4	4	4	4.00
30	F	16	2	4	4	4	4	3.60
38*	M	14	2	1	2	2	3	2.00
50	F	15	2	1	3	3	3	2.40
51	F	16	4	3	3	4	4	3.60
52	M	16	2	4	2	3	2	2.60
53*	F	17	3	4	4	4	4	3.80

Table 38: Initial Global Self-Worth for Subjects; *denotes subject fit in contact lenses

			Item					
Subject Number	Sex	Age (Yr)	1	10	19	28	37	Mean
7	M	15	4	4	4	4	4	4.00
38*	M	16	2	2	3	3	2	2.40
50	F	16	2	2	2	2	2	2.00
52	F	17	4	2	2	3	3	2.80
53*	F	17	4	4	4	3	4	3.80

Table 39: Follow Up Scholastic Competence Results for Subjects; *denotes subject fit in contact lenses

			Item					
Subject Number	Sex	Age (Yr)	2	11	20	29	38	Mean
7	M	15	4	4	4	4	3	3.80
38*	M	16	2	2	2	2	2	2.00
50	F	16	1	2	2	2	2	1.80
52	F	17	2	2	2	3	1	2.00
53*	F	17	4	4	4	4	4	4.00

Table 40: Follow Up Social Competence Results for Subjects; *denotes subject fit in contact lenses

			Item					
Subject Number	Sex	Age (Yr)	3	12	21	30	39	Mean
7	M	15	3	3	3	2	2	2.60
38*	M	16	3	3	2	2	2	2.40
50	F	16	2	2	1	1	1	1.40
52	F	17	1	2	2	3	1	1.80
53*	F	17	1	1	2	2	2	1.60

Table 41: Follow Up Athletic Competence Results for Subjects; *denotes subject fit in contact lenses

			Item					
Subject Number	Sex	Age (Yr)	4	13	22	31	40	Mean
7	M	15	3	1	1	3	2	2.00
38*	M	16	2	1	2	1	2	1.60
50	F	16	2	2	2	2	2	2.00
52	F	17	1	3	2	1	2	1.80
53*	F	17	4	4	4	4	4	4.00

Table 42: Follow Up Physical Appearance Results for Subjects; *denotes subject fit in contact lenses

			Item					
Subject Number	Sex	Age (Yr)	5	14	23	32	41	Mean
7	M	15	4	2	4	2	2	2.80
38*	M	16	3	3	3	2	3	2.80
50	F	16	1	2	3	3		1.80
52	F	17	2	3		3	3	2.20
53*	F	17	4	4	4	1	4	3.40

Table 43: Follow Up Job Competence Results for Subjects; *denotes subject fit in contact lenses

			Item					
Subject Number	Sex	Age (Yr)	6	15	24	33	42	Mean
7	M	15	2	3	3	4	3	3
38*	M	16	2	4	1	1	4	2.4
50	F	16	1	*	2	2	1	1.2
52	F	17	1	2	3	2	3	2.2
53*	F	17	4	4	4	4	4	4

Table 44: Follow Up Romantic Appeal Results for Subjects; *denotes subject fit in contact lenses

			Item					
Subject Number	Sex	Age (Yr)	7	16	25	34	43	Mean
7	M	15	4	4	4	4	4	4.00
38*	M	16	3	2	2	2	2	2.20
50	F	16	3	3	1	3		2.00
52	F	17	3	3	3	2	3	2.80
53*	F	17	4	4	4	3	4	3.80

Table 45: Follow Up Behavioral Conduct Results for Subjects; *denotes subject fit in contact lenses

			Item					
Subject Number	Sex	Age (Yr)	8	17	26	35	44	Mean
7	M	15	3	4	4	1	4	3.20
38*	M	16	2	2	2	2	2	2.00
50	F	16	2	2	2	2	2	2.00
52	F	17	2	3	3	2	2	2.40
53*	F	17	4	4	4	2	4	3.60

Table 46: Follow Up Close Friendship Results for Subjects; *denotes subject fit in contact lenses

			Item					
Subject Number	Sex	Age (Yr)	9	18	27	36	45	Mean
7	M	15	2	4	3	4	4	3.4
38*	M	16	1	2	2	2	2	1.8
50	F	16	2	2	2	3	2	2.2
52	F	17	2	2	2	3	2	2.2
53*	F	17	4	4	4	4	4	4

Table 47: Follow Up Global Self-Worth Results for Subjects; *denotes subject fit in contact lenses

Appendix B: Consent and Assent Forms

The Ohio State University Combined Parental Permission and HIPAA Authorization for Child's Participation in Research

Study Title: Contact Lenses, Academics and Self-Perception (CLASP)

Principal Investigator: Jacqueline Davis, OD, MPH and Zachary Coates

Sponsor: The Ohio State University College of Optometry

- **This is a parental permission form for research participation.** It contains important information about this study and what to expect if you permit your child to participate. Please consider the information carefully. Feel free to discuss the study with your friends and family and to ask questions before making your decision whether or not to permit your child to participate.
- **Your child's participation is voluntary.** You or your child may refuse participation in this study. If your child takes part in the study, you or your child may decide to leave the study at any time. No matter what decision you make, there will be no penalty to your child and neither you nor your child will lose any of your usual benefits. Your decision will not affect your future relationship with The Ohio State University. If you or your child is a student or employee at Ohio State, your decision will not affect your grades or employment status.
- **Your child may or may not benefit as a result of participating in this study.** Also, as explained below, your child's participation may result in unintended or harmful effects for him or her that may be minor or may be serious depending on the nature of the research.
- **You and your child will be provided with any new information that develops during the study that may affect your decision whether or not to continue to participate.** If you permit your child to participate, you will be asked to sign this form and will receive a copy of the form. You are being asked to consider permitting your child to participate in this study for the reasons explained below.

1. Why is this study being done?

The purpose of this research study is to examine how 9th and 10th grade students' self-perceptions may affect their academic performance.

This study will also try to determine if wearing contact lenses will have a positive

influence on self-perception and if an improvement in self-perception results in any change in academic performance.

2. How many people will take part in this study?

All members of the 9th and 10th grade classes at the Franklinton Preparatory High School, who have been found to need eye glasses, are being invited to participate in this study.

3. What will happen if my child takes part in this study?

Your child will be given a questionnaire called the Adolescent Self Perception Survey at the beginning and end of the school year. Results of this survey and the results of your child's I-Ready Exam results (which is already routinely given at the beginning and end of the school year), will be compared and analyzed. The administration of the Franklinton Preparatory Academy has agreed to share the results of these tests with this research team.

Students who are found to be in need of glasses, will randomly be chosen to be placed into one of two groups. One group will be fit with contact lenses and the other group will serve as the non-treatment group.

If your child is chosen to be fit with contact lenses, they will receive a one year supply of daily disposable contact lenses, fittings, instructions, follow-up visits, cases and solutions, all at no at no charge to you or your child. The contact lenses will be given to your child every 2 months at their follow-up visits. The fittings and follow-up visits will take place at the Lower Lights Health Center at 1160 West Broad Street.

If your child is ~~are~~ chosen to be in the non-treatment group, they ~~you~~ will be given the opportunity to be fit with contact lenses at the end of the school year. At that time, ~~you~~ they will receive daily disposable contact lenses, fittings, instructions, follow-up visits, cases and solutions at no charge to you or your child. The contact lenses will be given to your child every 2 months at their follow-up visits. The fittings and follow-up visits will take place at the Lower Lights Health Center at 1160 West Broad Street.

Those children who participate in this study, must have a pair of glasses that they will keep throughout the duration of this study. If your child is randomly chosen to be in the treatment group, your child must have a pair of eyeglasses before any contacts will be considered for them. They must also keep their glasses available while they are wearing their contact lenses (as back-up). If your child does not have

any glasses, this study will assist them in getting one pair. If they do not continue to own a pair of glasses throughout this study, they may be removed from the study.

If your child is chosen to be in the non-treatment group, they also must agree to wear their glasses throughout the duration of this study. If your child does not have glasses, this study will assist them in getting one pair of glasses. If they do not continue to own a pair of glasses throughout this study, they may be removed from the study.

This study will try to determine if wearing contact lenses will have a positive influence on self-perception and if an improvement in self-perception results in any change in academic performance.

4. How long will my child be in the study?

1 or 2 years, depending on your desire or your child's desire to continue participating in this study. If your child chooses to participate in the second year of this study, they will continue to receive free lenses, fittings, solutions. In the second year, this study team will again analyze the self- perception and academics results at the beginning and end of the school year.

5. Can my child stop being in the study?

Your child may leave the study at any time. If you or your child decides to stop participation in the study, there will be no penalty and neither you nor your child will lose any benefits to which you are otherwise entitled. Your decision will not affect your future relationship with The Ohio State University.

6. What risks, side effects or discomforts can my child expect from being in the study?

If your child is chosen to be fit with contact lenses, the risks associated with wearing contact lenses include, but are not limited to the following:
Scratches or sores on the eye
Eye redness and sensitivity to lights
Infectious contaminations
Allergic reaction to solutions

These risks can be eliminated or minimized by using proper contact lens solutions and hygiene, adhering to prescribed wearing schedules and replacing lenses on appropriate schedules.

It will be the responsibility of the student to adhere to the health and hygiene rules established by the researchers. Follow-up appointments every 2 months (or more

frequently if warranted) and maintenance schedules for healthy contact lens wear must also be followed by the student. There will be no color contacts and no extended wear contacts (no sleeping in the lenses). If a student fails to follow these rules, they will be removed from this study.

7. What benefits can my child expect from being in the study?

Ultimately, it is hoped that there will be a better understanding of relationships between self-perception and academic performance.

Children chosen to be fit with contact lenses will have the opportunity to receive free contact lens fittings and a one year supply of contact lenses and solutions (no color contact lenses or extended wear (no sleeping in the lenses) will be offered in this study).

Each student must first own a pair of glasses that they can wear as back-up if something happens to their contact lenses. If they do not have glasses, this study will assist them in obtaining one pair.

8. What other choices does my child have if he/she does not take part in the study?

You or your child may choose not to participate without penalty or loss of benefits to which you are otherwise entitled.

9. What are the costs of taking part in this study?

There are no costs involved in being a part of this study.

10. Will I or my child be paid for taking part in this study?

No direct payment will be made for participation in this study.

11. What happens if my child is injured because he/she took part in this study?

If your child suffers an injury from participating in this study, you should notify the researcher or study doctor immediately, who will determine if your child should obtain medical treatment at The Ohio State University Medical Center.

The cost for this treatment will be billed to you or your medical or hospital insurance. The Ohio State University has no funds set aside for the payment of health care expenses for this study.

12. What are my child's rights if he/she takes part in this study?

If you and your child choose to participate in the study, you may discontinue participation at any time without penalty or loss of benefits. By signing this form, you do not give up any personal legal rights your child may have as a participant in this study.

You and your child will be provided with any new information that develops during the course of the research that may affect your decision whether or not to continue participation in the study.

You or your child may refuse to participate in this study without penalty or loss of benefits to which you are otherwise entitled.

An Institutional Review Board responsible for human subjects research at The Ohio State University reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research.

13. Will my child's study-related information be kept private?

Efforts will be made to keep your child's study-related information confidential. However, there may be circumstances where this information must be released. For example, personal information regarding your child's participation in this study may be disclosed if required by state law.

Also, your child's records may be reviewed by the following groups (as applicable to the research):

- Office for Human Research Protections or other federal, state, or international regulatory agencies;
- U.S. Food and Drug Administration;
- The Ohio State University Institutional Review Board or Office of Responsible Research Practices;
- The sponsor supporting the study, their agents or study monitors; and
- Your insurance company (if charges are billed to insurance).

A description of this clinical trial will be available on http://www.ClinicalTrials.gov, as required by U.S. law. This website will not include information that can identify your child. At most, the website will include a summary of the results. You can search the website at any time.

14. HIPAA AUTHORIZATION TO USE AND DISCLOSE INFORMATION FOR RESEARCH PURPOSES

I. What information about my child may be used and given to others?

- Past and present medical records;
- Research records;
- Records about phone calls made as part of this research;
- Records about your child's study visits;
- Information that includes personal identifiers, such as your child's name, or a number associated with your child as an individual;
- Information gathered for this research about:
- Records about contact lens fittings

II. Who may use and give out information about your child?

Researchers and study staff.

III. Who might get this information?

- The sponsor of this research. "Sponsor" means any persons or companies that are:
    - working for or with the sponsor; or
    - owned by the sponsor.
- Authorized Ohio State University staff not involved in the study may be aware that your child is participating in a research study and have access to your child's information;
- If this study is related to your child's medical care, study-related information may be placed in your child's permanent hospital, clinic or physician's office record;
- Others: The Ohio State University College of Optometry, collaborators, healthcare providers and persons that analyze health information for the study.

IV. Your child's information <u>may</u> be given to:

- The U.S. Food and Drug Administration (FDA), Department of Health and Human Services (DHHS) agencies, and other federal and state entities;
- Governmental agencies in other countries;
- Governmental agencies to whom certain diseases (reportable diseases) must be reported; and
- The Ohio State University units involved in managing and approving the research study including the Office of Research and the Office of Responsible Research Practices.

V. Why will this information be used and/or given to others?

- To do the research;
- To study the results; and
- To make sure that the research was done right.

VI. When will my permission end?

There is no date at which your permission ends. Your child's information will be used indefinitely. This is because the information used and created during the study may be analyzed for many years, and it is not possible to know when this will be complete.

VII. May I withdraw or revoke (cancel) my permission?

Yes. The authorization will be good for the time period indicated above unless you change your mind and revoke it in writing. You may withdraw or take away your permission to use and disclose your child's health information at any time. You do this by sending written notice to the researchers. If you withdraw your permission, your child will not be able to stay in this study. When you withdraw your permission, no new health information identifying your child will be gathered after that date. Information that has already been gathered may still be used and given to others.

VIII. What if I decide not to give permission to use and give out my child's health information?

Then your child will not be able to be in this research study and receive research-related treatment. However, if your child is being treated as a patient here, your child will still be able to receive care.

IX. Is my child's health information protected after it has been given to others?

There is a risk that your child's information will be given to others without your permission. Any information that is shared may no longer be protected by federal privacy rules.

X. May I review or copy my child's information?

Signing this authorization also means that you may not be able to see or copy your child's study-related information until the study is completed.

15. Who can answer my questions about the study?

For questions, concerns, or complaints about the study, or if you feel your child has been harmed as a result of study participation, you may contact: ***Dr. Jacqueline Davis 614-247-1685 or Davis.1959@osu.edu***

For questions related to your child's privacy rights under HIPAA or related to this research authorization, please contact Ms. Cathy Beatty, The Ohio State University College of Optometry, 614-292-2020: HIPAA Privacy contact

For questions about your child's rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

If your child is injured as a result of participating in this study or for questions about a study-related injury, you may contact: ***Dr. Jacqueline Davis 614-247-1685 or Davis.1959@osu.edu***

Signing the parental permission form

I have read (or someone has read to me) this form and I am aware that I am being asked to provide permission for my child to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to permit my child to participate in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this combined consent and HIPAA research authorization form**.**

Printed name of subject (Child)

Printed name of person authorized to provide permission for subject

Signature of person authorized to provide permission for subject

Relationship to the subject

Date and time **AM/PM**

Investigator/Research Staff

I have explained the research to the participant or his/her representative before requesting the signature(s) above. There are no blanks in this document. A copy of this form has been given to the participant or his/her representative.

Printed name of person obtaining consent

Signature of person obtaining consent

Date and time **AM/PM**

Witness(es) **-** *May be left blank if not required by the IRB*

Printed name of witness

Signature of witness

Date and time **AM/PM**

Printed name of witness

Signature of witness

Date and time **AM/PM**

The Ohio State University Assent to Participate in Research

Study Title: Contact Lenses, Academics and Self-Perception (CLASP)

Principal Investigator: Jacqueline Davis, OD, MPH and Zachary Coates

Sponsor: The Ohio State University College of Optometry

- **You are being asked to be in a research study. Studies are done to find better ways to treat people or to understand things better.**
- **This form will tell you about the study to help you decide whether or not you want to participate.**
- **You should ask any questions you have before making up your mind. You can think about it and discuss it with your family or friends before you decide.**
- **It is okay to say "No" if you don't want to be in the study. If you say "Yes" you can change your mind and quit being in the study at any time without getting in trouble.**
- **If you decide you want to be in the study, an adult (usually a parent) will also need to give permission for you to be in the study.**

1. What is this study about?

The purpose of this research study is to examine how 9th and 10th grade students' self-perceptions may affect their academic performance.

This study will also try to determine if wearing contact lenses will have a positive influence on self-perception and if an improvement in self-perception results in any change in academic performance.

2. What will I need to do if I am in this study?

You will be given a questionnaire called the Adolescent Self Perception Survey at the beginning and end of the school year. Results of this survey and the results of your I-Ready Exam scores (which is already routinely given at the beginning and end of the school year), will be compared and analyzed.

Students who are found to be in need of glasses, will randomly be chosen to be placed into one of two groups. One group will be fit with contact lenses and the other group will serve as the non-treatment group for the first year.

If you are chosen to be fit with contact lenses in the first year, you will receive daily disposable contact lenses, cases, fittings, instructions, follow-up visits and solutions, all at no at no charge to you. The fittings and follow-up visits (every 2 months, or sooner if warranted) will take place at the Lower Lights Health Center at 1160 West Broad Street. A two month supply of contact lenses will be dispensed to each student at each follow-up visit.

If you are chosen to be in the non-treatment group, you will be given the opportunity to be fit with contact lenses at the end of the school year. At that time, you will receive daily disposable contact lenses, fittings, instructions, follow-up visits, cases and solutions at no charge to you. You will be given a year‘s supply over the course of the next year.

If you do need glasses, you must have them before you will be considered for participation in this study. You must have glasses before any contacts will be considered for you. You must also keep your glasses available while you are wearing your contact lenses. You must also keep your glasses and wear them if you are a part of the non-treatment group. If you do not have any glasses, this study will assist you in getting one pair. If you do not continue to own a pair of glasses throughout this study, you may be removed from the study.

This study will try to determine if wearing contact lenses will have a positive influence on self-perception and if an improvement in self-perception results in any change in academic performance.

3. How long will I be in the study?

1 or 2 years, depending on your desire to continue participating in this study. If you choose to participate in the second year of this study, you will continue to receive free lenses, fittings and solutions. In the second year, this study team will again analyze the self- perception and academics results at the beginning and end of the school year.

If you are randomly chosen to be a part of the non-treatment group, you will be given the opportunity to be fit with contacts at the end of the year and will be followed throughout the second year.

4. Can I stop being in the study?

You may stop being in the study at any time.

5. What bad things might happen to me if I am in the study?

If you are chosen to be fit with contact lenses, the risks associated with wearing contact lenses include, but are not limited to the following:

Scratches or sores on the eye

Eye redness and sensitivity to lights
Infectious contaminations
Allergic reaction to solutions

These risks can be eliminated or minimized by using proper contact lens solutions and hygiene, adhering to prescribed wearing schedules and replacing lenses on appropriate schedules.

It will be the responsibility of the student to adhere to the health and hygiene rules established by the researchers. Follow-up appointments every 2 months (or more frequent is warranted) and maintenance schedules for healthy contact lens wear must also be followed by the student. If a student fails to follow these rules, they will be removed from this study.

6. What good things might happen to me if I am in the study?

Ultimately, it is hoped that there will be a better understanding of relationships between self-perception and academic performance.

If you are chosen to be fit with contact lenses, you will have the opportunity to receive a free contact lens fitting and a one year supply of daily disposable contact lenses as well as contact lens solutions (no color contact lenses will be offered in this study). The lenses will be given out every two months at the follow-up visits which will take place at the Lower Lights Health Center at 1160 West Broad Street.

You must first own a pair of glasses that you can wear as back-up if something happens to your contact lenses. If you do not have glasses, this study will assist you in obtaining one pair.

7. Will I be given anything for being in this study?

There will be no payment for taking part in this study, but you may be chosen to receive free contacts and solutions.

8. Who can I talk to about the study?

For questions about the study you may contact ***Dr. Jacqueline Davis 614-247-1685 or Davis.1959@osu.edu***

To discuss other study-related questions with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Signing the assent form

I have read (or someone has read to me) this form. I have had a chance to ask questions before making up my mind. I want to be in this research study.

Signature or printed name of subject	**Date and time**	**AM/PM**

Investigator/Research Staff

I have explained the research to the participant before requesting the signature above. There are no blanks in this document. A copy of this form has been given to the participant or his/her representative.

Printed name of person obtaining assent	**Signature of person obtaining assent**	
	Date and time	**AM/PM**

This form must be accompanied by an IRB approved parental permission form signed by a parent/guardian.

Appendix C: Self-Perception Profile for Adolescents

What I Am Like

Name_____ Age____ Birthday _____ ☐ Boy ☐ Girl
Month Day (check one)

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
			Sample Sentence				
a.	☐	☐	Some teenagers like to go to movies in their spare time	**BUT**	Other teenagers would rather go to sports events	☐	☐
1.	☐	☐	Some teenagers feel that they are just as smart as others their age	**BUT**	Other teenagers aren't so sure and wonder if they are as smart	☐	☐
2.	☐	☐	Some teenagers find it hard to make friends	**BUT**	Other teenagers find it pretty easy to make friends	☐	☐
3.	☐	☐	Some teenagers do very well at all kinds of sports	**BUT**	Other teenagers *don't* feel that they are very good when it comes to sports	☐	☐
4.	☐	☐	Some teenagers are *not* happy with the way they look	**BUT**	Other teenagers *are* happy with the way they look	☐	☐
5.	☐	☐	Some teenagers feel that they are ready to do well at a part-time job	**BUT**	Other teenagers feel that they are not quite ready to handle a part-time job	☐	☐
6.	☐	☐	Some teenagers feel that if they are romantically interested in someone, that person will like them back	**BUT**	Other teenagers worry that when they like someone romantically, that person *won't* like them back	☐	☐
7.	☐	☐	Some teenagers usually do the right thing	**BUT**	Other teenagers often don't do what they know is right	☐	☐
8.	☐	☐	Some teenagers are able to make really close friends	**BUT**	Other teenagers find it hard to make really close friends	☐	☐
9.	☐	☐	Some teenagers are often disappointed with themselves	**BUT**	Other teenagers are pretty pleased with themselves	☐	☐

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	Really True for me	Sort of True for me				Sort of True for me	Really True for me
10.	☐	☐	Some teenagers are pretty slow in finishing their school work	**BUT**	Other teenagers can do their school work quickly	☐	☐
11.	☐	☐	Some teenagers know how to make classmates like them	**BUT**	Other teenagers don't know how to make classmates like them	☐	☐
12.	☐	☐	Some teenagers think they could do well at just about any new athletic activity	**BUT**	Other teenagers are afraid they might not do well at a new athletic activity	☐	☐
13.	☐	☐	Some teenagers wish their body was different	**BUT**	Other teenagers like their body the way it is	☐	☐
14.	☐	☐	Some teenagers feel that they *don't* have enough skills to do well at a job	**BUT**	Other teenagers feel that they *do* have enough skills to do a job well	☐	☐
15.	☐	☐	Some teenagers are *not* dating the people they are really attracted to	**BUT**	Other teenagers *are* dating those people they are attracted to	☐	☐
16.	☐	☐	Some teenagers often get in trouble because of things they do	**BUT**	Other teenagers usually *don't* do things that get them in trouble	☐	☐
17.	☐	☐	Some teenagers *don't* know how to find a close friend with whom they can share secrets	**BUT**	Other teenagers *do* know how to find a close friend with whom they can share secrets	☐	☐
18.	☐	☐	Some teenagers don't like the way they are leading their life	**BUT**	Other teenagers do like the way they are leading their life	☐	☐
19.	☐	☐	Some teenagers do very well at their classwork	**BUT**	Other teenagers *don't* do very well at their classwork	☐	☐
20.	☐	☐	Some teenagers don't have the social skills to make friends	**BUT**	Other teenagers do have the social skills to make friends	☐	☐
21.	☐	☐	Some teenagers feel that they are better than others their age at sports	**BUT**	Other teenagers don't feel they can play as well	☐	☐
22.	☐	☐	Some teenagers wish their physical appearance was different	**BUT**	Other teenagers like their physical appearance the way it is	☐	☐

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
23.	☐	☐	Some teenagers feel they are old enough to get and keep a paying job	**BUT**	Other teenagers do not feel that they are old enough, yet, to really handle a job well	☐	☐
24.	☐	☐	Some teenagers feel that people their age will be romantically attracted to them	**BUT**	Other teenagers worry about whether people their age will be attracted to them	☐	☐
25.	☐	☐	Some teenagers feel really good about the way they act	**BUT**	Other teenagers *don't* feel that good about the way they often act	☐	☐
26.	☐	☐	Some teenagers *do* know what it takes to develop a close friendship with a peer	**BUT**	Other teenagers *don't* know what to do to form a close friendship with a peer	☐	☐
27.	☐	☐	Some teenagers are happy with themselves most of the time	**BUT**	Other teenagers are often not happy with themselves	☐	☐
28.	☐	☐	Some teenagers have trouble figuring out the answers in school	**BUT**	Other teenagers almost always can figure out the answers	☐	☐
29.	☐	☐	Some teenagers understand how to get peers to accept them	**BUT**	Other teenagers don't understand how to get peers to accept them	☐	☐
30.	☐	☐	Some teenagers don't do well at new outdoor games	**BUT**	Other teenagers are good at new games right away	☐	☐
31.	☐	☐	Some teenagers think that they are good looking	**BUT**	Other teenagers think that they are not very good looking	☐	☐
32.	☐	☐	Some teenagers feel like they could do better at work they do for pay	**BUT**	Other teenagers feel that they are doing really well at work they do for pay	☐	☐
33.	☐	☐	Some teenagers feel that they are fun and interesting on a date	**BUT**	Other teenagers wonder about how fun and interesting they are on a date	☐	☐
34.	☐	☐	Some teenagers do things they know they shouldn't do	**BUT**	Other teenagers hardly ever do things they know they shouldn't do	☐	☐

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
35.	☐	☐	Some teenagers find it hard to make friends they can really trust	**BUT**	Other teenagers *are* able to make close friends they can really trust	☐	☐
36.	☐	☐	Some teenagers like the kind of person they are	**BUT**	Other teenagers often wish they were someone else	☐	☐
37.	☐	☐	Some teenagers feel that they are pretty intelligent	**BUT**	Other teenagers question whether they are intelligent	☐	☐
38.	☐	☐	Some teenagers know how to become popular	**BUT**	Other teenagers do not know how to become popular	☐	☐
39.	☐	☐	Some teenagers do not feel that they are very athletic	**BUT**	Other teenagers feel that they *are* very athletic	☐	☐
40.	☐	☐	Some teenagers really like their looks	**BUT**	Other teenagers wish they looked different	☐	☐
41.	☐	☐	Some teenagers feel that they are really able to handle the work on a paying job	**BUT**	Other teenagers wonder if they are really doing as good a job at work as they should be doing	☐	☐
42.	☐	☐	Some teenagers usually *don't* go out with people they would really like to date	**BUT**	Other teenagers *do* go out with people they really want to date	☐	☐
43.	☐	☐	Some teenagers usually act the way they know they are supposed to	**BUT**	Other teenagers often don't act the way they are supposed to	☐	☐
44.	☐	☐	Some teenagers *don't* understand what they should do to have a friend close enough to share personal thoughts with	**BUT**	Other teenagers *do* understand what to do to have a close friend with whom they can share personal thoughts.	☐	☐
45.	☐	☐	Some teenagers are very happy being the way they are	**BUT**	Other teenagers often wish they were different	☐	☐

Susan Harter, Ph.D., University of Denver, 2012

What I Am Like: Scoring Key

SELF-PERCEPTION PROFILE FOR ADOLESCENTS

Susan Harter, Ph.D., University of Denver, 2012

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
			Sample Sentence				
a.	☐	☐	Some teenagers like to go to movies in their spare time	**BUT**	Other teenagers would rather go to sports events	☐	☐
1.	4	3	Some teenagers feel that they are just as smart as others their age	**BUT**	Other teenagers aren't so sure and wonder if they are as smart	2	1
2.	1	2	Some teenagers find it hard to make friends	**BUT**	Other teenagers find it pretty easy to make friends	3	4
3.	4	3	Some teenagers do very well at all kinds of sports	**BUT**	Other teenagers *don't* feel that they are very good when it comes to sports	2	1
4.	1	2	Some teenagers are *not* happy with the way they look	**BUT**	Other teenagers *are* happy with the way they look	3	4
5.	4	3	Some teenagers feel that they are ready to do well at a part-time job	**BUT**	Other teenagers feel that they are not quite ready to handle a part-time job	2	1
6.	4	3	Some teenagers feel that if they are romantically interested in someone, that person will like them back	**BUT**	Other teenagers worry that when they like someone romantically, that person *won't* like them back	2	1
7.	4	3	Some teenagers usually do the right thing	**BUT**	Other teenagers often don't do what they know is right	2	1
8.	4	3	Some teenagers are able to make really close friends	**BUT**	Other teenagers find it hard to make really close friends	2	1
9.	1	2	Some teenagers are often disappointed with themselves	**BUT**	Other teenagers are pretty pleased with themselves	3	4

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	Really True for me	Sort of True for me				Sort of True for me	Really True for me
10.	1	2	Some teenagers are pretty slow in finishing their school work	**BUT**	Other teenagers can do their school work quickly	3	4
11.	4	3	Some teenagers know how to make classmates like them	**BUT**	Other teenagers don't know how to make classmates like them	2	1
12.	4	3	Some teenagers think they could do well at just about any new athletic activity	**BUT**	Other teenagers are afraid they might not do well at a new athletic activity	2	1
13.	1	2	Some teenagers wish their body was different	**BUT**	Other teenagers like their body the way it is	3	4
14.	1	2	Some teenagers feel that they *don't* have enough skills to do well at a job	**BUT**	Other teenagers feel that they *do* have enough skills to do a job well	3	4
15.	1	2	Some teenagers are *not* dating the people they are really attracted to	**BUT**	Other teenagers *are* dating those people they are attracted to	3	4
16.	1	2	Some teenagers often get in trouble because of things they do	**BUT**	Other teenagers usually *don't* do things that get them in trouble	3	4
17.	1	2	Some teenagers *don't* know how to find a close friend with whom they can share secrets	**BUT**	Other teenagers *do* know how to find a close friend with whom they can share secrets	3	4
18.	1	2	Some teenagers don't like the way they are leading their life	**BUT**	Other teenagers do like the way they are leading their life	3	4
19.	4	3	Some teenagers do very well at their classwork	**BUT**	Other teenagers *don't* do very well at their classwork	2	1
20.	1	2	Some teenagers don't have the social skills to make friends	**BUT**	Other teenagers do have the social skills to make friends	3	4
21.	4	3	Some teenagers feel that they are better than others their age at sports	**BUT**	Other teenagers don't feel they can play as well	2	1
22.	1	2	Some teenagers wish their physical appearance was different	**BUT**	Other teenagers like their physical appearance the way it is	3	4

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
23.	4	3	Some teenagers feel they are old enough to get and keep a paying job	**BUT**	Other teenagers do not feel that they are old enough, yet, to really handle a job well	2	1
24.	4	3	Some teenagers feel that people their age will be romantically attracted to them	**BUT**	Other teenagers worry about whether people their age will be attracted to them	2	1
25.	4	3	Some teenagers feel really good about the way they act	**BUT**	Other teenagers *don't* feel that good about the way they often act	2	1
26.	4	3	Some teenagers *do* know what it takes to develop a close friendship with a peer	**BUT**	Other teenagers *don't* know what to do to form a close friendship with a peer	2	1
27.	4	3	Some teenagers are happy with themselves most of the time	**BUT**	Other teenagers are often not happy with themselves	2	1
28.	1	2	Some teenagers have trouble figuring out the answers in school	**BUT**	Other teenagers almost always can figure out the answers	3	4
29.	4	3	Some teenagers understand how to get peers to accept them	**BUT**	Other teenagers don't understand how to get peers to accept them	2	1
30.	1	2	Some teenagers don't do well at new outdoor games	**BUT**	Other teenagers are good at new games right away	3	4
31.	4	3	Some teenagers think that they are good looking	**BUT**	Other teenagers think that they are not very good looking	2	1
32.	1	2	Some teenagers feel like they could do better at work they do for pay	**BUT**	Other teenagers feel that they are doing really well at work they do for pay	3	4
33.	4	3	Some teenagers feel that they are fun and interesting on a date	**BUT**	Other teenagers wonder about how fun and interesting they are on a date	2	1
34.	1	2	Some teenagers do things they know they shouldn't do	**BUT**	Other teenagers hardly ever do things they know they shouldn't do	3	4

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
35.	1	2	Some teenagers find it hard to make friends they can really trust	**BUT**	Other teenagers *are* able to make close friends they can really trust	3	4
36.	4	3	Some teenagers like the kind of person they are	**BUT**	Other teenagers often wish they were someone else	2	1
37.	4	3	Some teenagers feel that they are pretty intelligent	**BUT**	Other teenagers question whether they are intelligent	2	1
38.	4	3	Some teenagers know how to become popular	**BUT**	Other teenagers do not know how to become popular	2	1
39.	1	2	Some teenagers do not feel that they are very athletic	**BUT**	Other teenagers feel that they *are* very athletic	3	4
40.	4	3	Some teenagers really like their looks	**BUT**	Other teenagers wish they looked different	2	1
41.	4	3	Some teenagers feel that they are really able to handle the work on a paying job	**BUT**	Other teenagers wonder if they are really doing as good a job at work as they should be doing	2	1
42.	1	2	Some teenagers usually *don't* go out with people they would really like to date	**BUT**	Other teenagers *do* go out with people they really want to date	3	4
43.	4	3	Some teenagers usually act the way they know they are supposed to	**BUT**	Other teenagers often don't act the way they are supposed to	2	1
44.	1	2	Some teenagers *don't* understand what they should do to have a friend close enough to share personal thoughts with	**BUT**	Other teenagers *do* understand what to do to have a close friend with whom they can share personal thoughts	3	4
45.	4	3	Some teenagers are very happy being the way they are	**BUT**	Other teenagers often wish they were different	2	1

Susan Harter, Ph.D., University of Denver, 2012