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# Shifting Perceptions: A Quantitative Experimental Study Regarding the Effect of Positive Kinesics on People Who Stutter

Steven Du

This study examined the effects of kinesics on male adolescents' perception of people who stutter (PWS). Twenty-four male participants from an all-boys high school viewed an audio clip of a person who stutters (PWS), a video of a PWS exhibiting positive kinesics, and a video of a PWS exhibiting negative kinesics. After each clip, the participant completed a semantic differential survey to determine the participant's perception of the speaker. The data was analyzed statistically using XLSTAT. The results indicate that positive kinesics has a significant positive effect on perception, kinesics has a significantly different effect on the perception of male and female speakers, and the perceptions of PWS may have shifted over time. The results did not show that negative kinesics had a significant negative effect on the perception of PWS.

*Keywords:* stuttering, stutterer, people who stutter, kinesics, perception,

## Introduction

For 75 minutes, Philip Garber kept his hand raised, wanting to pose a question about the exploration of the New World to his history class. The professor, however, showed no intention of acknowledging him. In fact, she had already told him not to speak in class, characterizing his speech as “disruptive” and an “infringe[ment] on other students’ time”. Despite his talkative nature, Philip has an acute stutter that makes expressing his ideas difficult. While Philip’s story, as reported by Perez-Pena (2011) in the *New York Times*, is an especially egregious example of discrimination against people who stutter (PWS), it reflects a broader negative perception of PWS.

The current research on the perceptions of PWS

shows that these negative perceptions of PWS have a deleterious effect on their interpersonal relationships, sociality, and employment opportunities (McAllister, Collier, & Shepstone, 2012; Plexico, Manning, & Levitt, 2009; Van Borsel, Brepoels, & De Coene, 2011). Although there are defined consequences that stem from a negative perception of PWS, the factors that affect this perception are less clear. Specifically, there is a gap in knowledge within the understanding of how the kinesics, which are the visual aspects of non-verbal communication, of PWS affect how others perceive them. Previous studies have focused on the perceptions of speech impediments independently of appearance (Rice, Hedley & Alexander, 1993; Mcallister, et al., 2012; Blood & Blood, 2007; Craig & Hancock, 2003; Woods & Williams, 1976). These studies have

concluded that stuttering is perceived negatively with lower ratings ranging from confidence to ability to succeed (Rice et al., 1993; Woods & Williams, 1976). Other studies have determined there is also a negative correlation between stuttering and educational outcomes (McAllister et al., 2012). The results of these studies, which are generally negative, may contribute to the growing negative perception of PWS.

Nonetheless, the current research has also demonstrated that the perceptions of PWS are malleable, especially amongst children and adolescents. For example, studies show that the perception of PWS are sensitive to media portrayals, self-acknowledgement of stuttering, and enrolment in speech therapy (Collins & Blood, 1990; Gabel, 2006; Miller, Mathers-Schmidt, & Fraas, M., 2015). The lack of knowledge regarding the factors that influence the perception of stuttering has led this paper to focus on the relationship between kinesics and perception, thus informing the research question: how do kinesics affect male Canadian high school students' perception of people who stutter?

To investigate the relationship between kinesics and the perceptions of PWS, 24 participants were sampled to participate in an experiment. The participants viewed an audio clip of a PWS, a video of a PWS exhibiting positive kinesics, and a video of a PWS exhibiting negative kinesics. After each clip, the participant filled out a semantic differential survey, which ascertained the participant's perception of the speaker. Based on previous research conducted by Blalock (1982), which showed that positive kinesics improved message reception, the researcher hypothesized that positive kinesics would have a favourable effect on the perception of PWS.

## Literature Review

### Perceptions of Stuttering

Stuttering is a major physical impairment. Stuttering limits speech and communication, which is a fundamental part of daily social interactions. Stuttering is even considered a disability under the American with Disabilities Act. In spite of its importance, research into stuttering only began in earnest when Marcel Wingate (1964) created a standard definition

of stuttering in the hopes of providing "a basis for a more systematic and efficient approach in the study of stuttering" (p. 489). Since then, many researchers have used Wingate's definition to examine the effect of different listeners (varied by gender, familiarity with stuttering, profession etc.) and different PWS (varied by gender, age, participation in speech therapy, severity of stuttering etc.) on how a PWS is perceived. While there are conflicting results between studies on some subjects, the research consistently shows that listeners react more negatively as the stuttering becomes more severe, and that PWS are rated more negatively than their fluent counterparts are (Boyle, 2017; Collins & Blood, 1990; Gabel, 2006; Von Tiling, 2011; Woods & Williams, 1976). Furthermore, many people hold negative stereotypes of PWS that extend beyond the physical traits of stuttering. When asked to describe stuttering, listeners conflated their own preconceived notions of PWS' personality traits with the physical traits associated with the speech impediment (Hughes, Gabel, Irani, & Schlagheck, 2010). This suggests that listeners' perceptions of PWS are based on not only an adverse response to the act of stuttering but also a negative preconception of PWS.

The negative social stereotypes and stigmas surrounding stuttering were first explored in Woods and Williams (1976). By using a stratified sample of 156 participants from varying backgrounds, Woods and Williams examined the stereotypes associated with male PWS. The researchers found significant differences between the traits ascribed to stuttering and fluent males across all demographics of listeners: "many people expect a stutterer to be different from a non-stutterer in certain undesirable ways" (p. 274). Specifically, the average PWS is expected to exhibit "shyness, anxiety, lack of self-confidence, and social withdrawal" (p. 276). The researchers observed no gender-based differences in the data of listeners' perceptions, which reaffirms previous results from Schroeder (2002). Contrastingly, other studies contend that female listeners judge PWS more positively than male listeners do (Burley & Rinaldi, 1986; Dietrich, Jensen, & Williams, 2001). While there is no consensus on the subject, this paper recognizes the possibility of gender-based perceptions of PWS.

More concerning is the conclusion from Woods and Williams (1976) that educators and speech pathologists were no less likely to hold negative stereo-

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types of PWS. A subsequent study conducted by Rice et al. (1993) found that similar biases and preconceptions existed against children with speech-language impairment. Once again, there was no difference in perception between educators, speech pathologists, employers, and the public. Such a pervasive stereotype of PWS would suggest that PWS actually behave in the undesirable manner in which they are described. However, previous studies into PWS and fluent speakers did not find a significant difference in personality (Beech & Fransella, 1968).

The origins of this seemingly unfounded stereotype of PWS has eluded researchers. Woods and Williams (1976) suggest that listeners wrongly extrapolate the state of anxiety a PWS experiences while speaking to his or her overall personality. More recently, a study conducted by Miller et al. (2015) attempts to find an explanation in media portrayals of PWS. Miller et al. (2015) conclude that stuttering is generally portrayed negatively – often for comedic effect – across all media platforms (e.g. literature, YouTube, television, movies). Moreover, Miller et al. (2015) find that media portrayals are pivotal in shifting listeners' attitudes towards PWS: “[m]ore negative portrayals of stuttering lead to more negative perceptions of PWS while more positive portrayals of stuttering in turn lead to more positive perceptions of PWS” (p. 72). Miller et al.'s (2015) study also suggests that listeners' perceptions are affected by non-auditory factors such as the appearance and behaviour, which has prompted this paper to focus on the relationship between the kinesics of PWS and perception.

### **Influence of Kinesics on Communication**

Although other researchers have examined the influence of body language, anthropologist Ray Birdwhistell formalized the field of study now known as kinesics. Kinesics, derived from the Greek word *kinesis* (motion), is “the systematic study of the visually sensible aspects of nonverbal interpersonal communication” (Birdwhistell, 1970, p. 354). In his seminal work *Introduction to Kinesics*, Birdwhistell (1982) created an annotation system for kinesics based on three classifications: facial expression, body language, and gestures. Furthermore, Birdwhistell (1970) estimates that only about 30% of meaning in social interactions is conveyed by spoken word. By creating a systematic

approach to the study of body motions, Birdwhistell legitimized an otherwise undervalued field of study.

Researchers often study kinesics in a business environment, where effective and efficient communications are paramount. A study conducted by Blalock (1973) investigated the impact of kinesics on message perception between management and employees. Blalock concludes that positive kinesics increases the credibility of a message, while negative kinesics has an adverse effect. These effects are enhanced when positive kinesics is paired with negative verbalization (e.g. poorly phrased, unpleasant delivery) or negative kinesics is paired with positive verbalization. Similarly, Chu, Strong, Ma, and Greene (2005) argue that kinesics are a powerful tool in business negotiations, especially between negotiators of different nationalities. Chu et al. find that negotiators tend to move closer and gesture to emphasize important points, smile to gain cooperation, and make continual eye contact to gain power. The positive effects of good kinesics were also noticed in teaching, another field that emphasizes communication. Orton (2007) explores the use of gestures in the teaching and learning of modern languages, an endeavour that has neglected the use of kinesics in favour of verbal channels of expression. Orton surmised that body motions played an integral role in learning: “language teachers could most beneficially make rich use of gestures in their teaching” (“Conclusion,” para. 1). Not only does kinesics play an integral role in business interactions, its ability to change message perception suggests that it could also have a powerful effect on the perceptions of PWS.

### **Impact of Stuttering on PWS**

The negative perceptions of PWS often create complications that influence their health and social involvement. These ramifications start from a young age and persist through adulthood. Children and adolescents who stutter risk being bullied and excluded at school. A self-reported survey conducted by Blood and Blood (2004) found that 43% of PWS experienced bullying, which was significantly higher than the 11% of fluent speakers who experienced bullying. These negative interactions and attitudes are internalized by PWS, resulting in “lower quality of life, hope, self-esteem, and self-efficacy” (Boyle, 2017, p. 922). The apprehension of potential negative reactions often cause

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PWS to withdraw or limit social interactions (Plexico et al., 2009). The transition into adulthood yields similar consequences. Stuttering continues to have a negative effect on interpersonal relationships, interfering with conversations and dating (Van Borsel et al., 2011). Despite this, a quantitative analysis of adult PWS found no significant differences in educational attainment or employment outcomes (as measured by pay) although PWS were observed to hold positions of lower status (McAllister et al., 2012). The researchers suggest that the propensity for PWS to hold lower-ranking positions “reflect[s] their preference for avoiding occupations perceived to require good spoken communication abilities” (p. 106). This conclusion is supported by a study from Klein and Hood (2004), which reported that half of the stuttering participants sought employment positions that required minimal speaking. The significant ramifications that the negative perception of stuttering has on PWS speak to the importance of further understanding the underlying factors that create such a perception.

The consequences that arise from the negative stereotypes of PWS demonstrate that the perceptions of PWS are formed from factors more complex than the physical trait of stuttering. However, few studies situate stuttering and its perception in a greater context, analyzing stuttering in conjunction with other external factors. None has specifically examined the relationship between stuttering, kinesics, and perception of PWS. This paper will provide a greater understanding of the effect of kinesics on the perceptions of PWS.

## Methodology

### Experimental Design

In this correlational study, an experiment was conducted to determine the effect of a PWS's kinesics on their perception by male adolescents. While a qualitative method might be able to provide a more detailed description about the perceptions of PWS, there is no consistent process to compare the individual descriptions. As such, this study uses standardized measures to analyze the relationship between these variables quantitatively, where kinesics was evaluated based on the only comprehensive annotation system that was

created by Birdwhistell (1970), focusing on facial expression, body language, and gestures;

stuttering was assessed based on the standard definition of stuttering proposed by Wingate (1964), which has been widely cited by subsequent studies on stuttering (Brundage, Bothe, Lengeling, & Evans, 2006; Conture & Kelly, 1991; Miller et al., 2015); and

listeners' perceptions were determined using a semantic differential scale, which was notably applied to the field of stuttering in Woods and Williams (1976) and has continued to be effective in determining listeners' attitudes of stuttering (Burley & Rinaldi, 1986; Miller et al., 2015; Rice et al., 1993).

In the experiment, participants listened to a PWS without visuals as a control. Then, they were shown two videos: one with a PWS exhibiting positive kinesics, and the other with a PWS exhibiting negative kinesics. As evidenced in Burley and Rinaldi (1986), the sex of the speaker has a significant effect on the listeners' perceptions. Thus, this process will be repeated on videos with a speaker of another sex. The selection and content of these videos will be discussed in a later section. After each video sample, the participants filled out a 10-item semantic differential scale (see Appendix A). The scale consists of numbers (one through seven) assigned to bipolar adjective pairs (negative/positive, dull/intelligent). Positive traits were assigned to the high end of the scale (seven), while negative traits were assigned to the low end of the scale (one). Participants were provided with a definitions sheet to ensure that there was a standardized understanding of the personality adjectives (see Appendix B). Furthermore, participants were given instructions to circle the number that most accurately reflected their perceptions about the personality traits of the speaker. Participants were also given the chance to familiarize themselves with the scale through a sample question so that they knew how to use the scale properly. Upon completion of the survey, the researcher collected the materials for analysis. Statistical analysis was performed on the data to determine if significant differences existed between the trait ratings across video samples.

### Video Samples

The videos and audio clips used in this study were chosen from a series of TED Talks about personal

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experiences with stuttering. This allowed for the content and message to be consistent between clips. Furthermore, the videos that were chosen featured speakers with similar appearances to avoid potentially confounding factors like race, body type, or height. The stutter rate was also kept consistent between clips with speakers of the same sex (see Appendix C). Each video clip was shown to a selected panel of two teachers and three grade 12 students that assigned it a kinesics score based on body language, facial expression, and gestures (see Appendix D). The clips were compiled into one video that was shown to each participant individually on the same laptop. After the initial instructions were read (See Appendix E) and any questions were answered, the experimenter left the room to allow the participant to respond individually and uninfluenced.

### Participants

Participants for this study were randomly selected from a private boys' high school in a region situated on the outskirts of the Greater Toronto Area. This school was chosen for its convenience of sampling. However, the consistency of demographics within the school allowed for a more representative sample of educated adolescents. Furthermore, due to the potentially confounding effect of the listeners' sex on perception, this study chose to focus on male listeners. (Burley & Rinaldi, 1986; Dietrich et al., 2001). From a random sample of students, the selected individuals were asked to complete a screening survey (see Appendix F). Students who indicated they were performing at grade-level expectations; had no impairments associated with vision, hearing, or language comprehension; and used English as their primary language were selected as participants in the experiment. Most importantly, students were asked whether they stuttered (now or previously), had a family member who stuttered, or had close relations with a friend who stuttered. Students who met any of the above criteria were excluded to obtain a representative perception by reducing the confounding effect of familiarity with stuttering (Woods & Williams, 1976). Consent forms (see Appendix G) were given to the selected students, and those who returned the forms signed by a parent or guardian participated in the experiment. The final sample

consisted of 24 students, with six students from each grade. The desired sample size was calculated using the sample size formula for finite populations:

$$\text{Sample Size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$$

where

$p = 0.5$ ;

$z$  is the z-score associated with the confidence level;

$e$  is the margin of error; and

$N$  is the population size.

As such, a 24-person sample is sufficient for a desired 95% confidence level and a 20% margin of error, given that the population of the school is 613 students.

The participants maintained full autonomy during the experiment and were allowed to withdraw at any time without penalty. Those who withdrew would have their responses disregarded and omitted from the analysis. The data was recorded without attributing names to responses, and the data was used for the sole purpose of this study.

## Results

The data from the experiment were analyzed to determine the effect of kinesics on the perception of PWS. The analysis focused on three main areas of investigation: the holistic effect of kinesics on perception, the effect of kinesics on individual personality traits, and the difference in effect between positive and negative kinesics. Since the data was bifurcated based on the sex of the speaker, a secondary analysis was conducted on the relationship between sex, kinesics, and perception. The data are summarized in the following charts and tables. Statistical analyses were conducted using XLSTAT.

### Holistic Effect of Kinesics on Perception

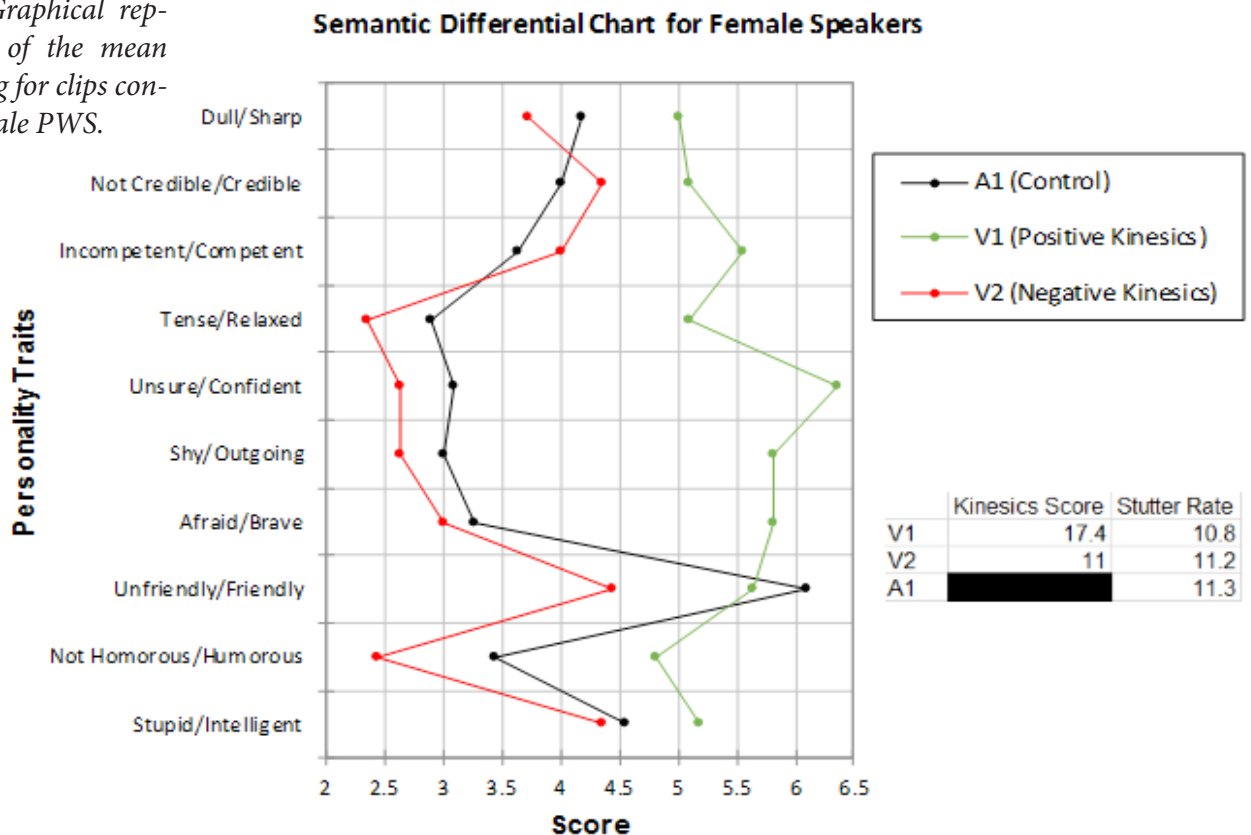
A multivariate analysis of variance (MANOVA) using the Wilk's Lambda test was performed on the datasets to determine the holistic effect of kinesics on perception. Of the six group comparisons (female control-positive, female control-negative, fe-

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Figure 1. Mean Likert ratings across participants for clips containing female PWS.

Adjective Pairs	A1 Female Control		V1 Female Positive		V2 Female Negative	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Dull/Sharp	4.18	0.98	5.00	1.10	3.73	1.01
Not Credible/Credible	4.00	2.05	5.09	1.22	4.36	1.50
Incompetent/Competent	3.64	1.91	5.55	1.04	4.00	1.55
Tense/Relaxed	2.91	1.04	5.09	1.70	2.36	1.03
Unsure/Confident	3.09	1.38	6.36	1.21	2.64	1.29
Shy/Outgoing	3.00	1.18	5.82	0.98	2.64	1.36
Afraid/Brave	3.27	1.62	5.82	0.98	3.00	1.67
Unfriendly/Friendly	6.09	0.94	5.64	0.92	4.45	1.29
Not Humorous/Humorous	3.45	1.57	4.82	1.17	2.45	0.69
Stupid/Intelligent	4.55	1.75	5.18	0.98	4.36	1.36

Figure 2. Graphical representation of the mean Likert rating for clips containing female PWS.

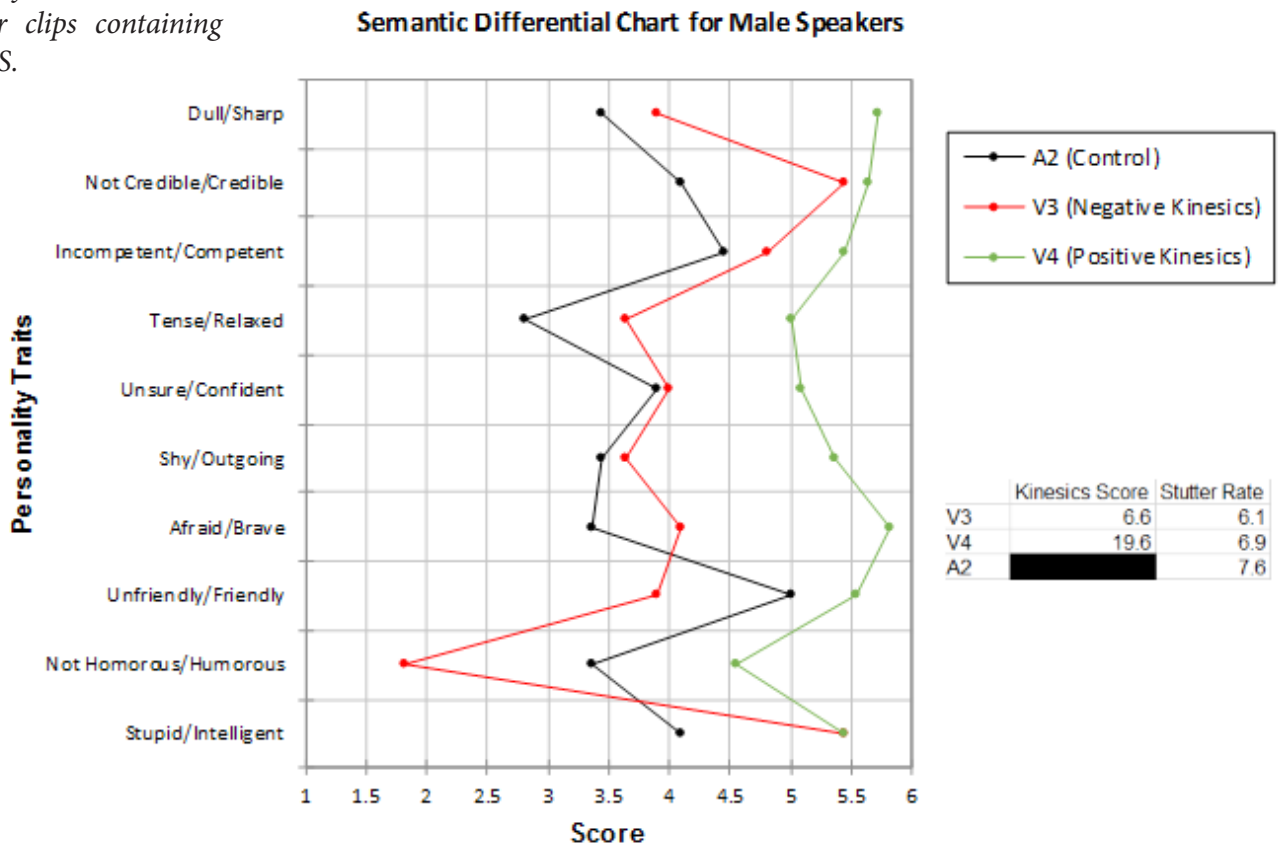


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Figure 3. Mean Likert ratings across participants for clips containing male PWS.

Adjective Pairs	A2 Male Control		A2 Male Negative		A2 Male Positive	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Dull/Sharp	3.45	1.51	3.91	1.81	5.73	0.90
Not Credible/Credible	4.09	1.51	5.45	0.93	5.64	0.81
Incompetent/Competent	4.45	1.69	4.82	1.17	5.45	0.93
Tense/Relaxed	2.82	1.33	3.64	1.36	5.00	1.90
Unsure/Confident	3.91	1.51	4.00	1.18	5.09	1.58
Shy/Outgoing	3.45	1.21	3.64	1.29	5.36	1.29
Afraid/Brave	3.36	1.80	4.09	1.30	5.82	0.98
Unfriendly/Friendly	5.00	1.26	3.91	1.38	5.55	0.82
Not Humorous/Humorous	3.36	1.57	1.82	0.87	4.55	1.29
Stupid/Intelligent	4.09	1.58	5.45	0.82	5.45	1.13

Figure 4. Graphical representation of the mean Likert rating for clips containing male PWS.





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Figure 5. Summary of statistical output for MANOVA using the Wilk's Lambda Test.

Test	d.f.	Lambda	F	p-value	Significant at $\alpha = 0.05$
A1-V1 (Female Control - Female Positive)	10, 24	0.223	3.842	0.018	Yes
A1-V2 (Female Control - Female Negative)	10, 24	0.458	1.304	0.334	No
A1-V2 (Female Positive - Female Negative)	10, 24	0.119	8.114	0.001	Yes
A2-V3 (Male Control - Male Negative)	10, 24	0.243	3.422	0.028	Yes
A2-V4 (Male Control - Male Positive)	10, 24	0.215	4.026	0.016	Yes
V3-V4 (Male Negative - Male Positive)	10, 24	0.269	2.984	0.043	Yes

male positive-negative, male control-positive, male control-negative, male positive-negative), only the female control-negative comparison did not achieve statistical significance. On balance, this indicates that the overall perception of speakers exhibiting positive or negative kinesics is significantly different from the control. A summary of the MANOVA data can be seen in Figure 5.

to be more superficial. Traits that are more associated with cognitive behaviour and mental competence (not credible/credible, incompetent/competent, unfriendly/friendly, not humorous/humorous, stupid/intelligent) did not achieve significance for any of the comparisons. This trend indicates that cognitive trait ratings are less sensitive to a change in kinesics than behavioural trait ratings.

### Effect of Kinesics on Individual Traits

For the comparisons to the control that achieved statistical significance, post-hoc testing (with a Bonferroni correction for  $\alpha = 0.05$ ) was performed to determine the effect of kinesics on the individual trait ratings. Despite being holistically different from the male control, none of the individual trait ratings for the male negative sample was significantly different from the control. Contrastingly, three adjective pairs – tense/relaxed, shy/outgoing, afraid/brave – achieved significance for both the female control-positive and the male control-positive comparisons. These traits manifest themselves in surface behaviour and tend

### Positive vs Negative Kinesics

A MANOVA was used to compare the negative sample data with the positive sample data for both speakers (see Figure 6). Both comparisons achieved statistical significance, indicating that positive kinesics has a different effect on perception than negative kinesics. As seen in Figures 1 and 3, the mean Likert ratings for the speaker exhibiting positive kinesics are significantly higher than the control. As such, positive kinesics shifts listener perception favourably. Contrastingly, the effect of negative kinesics on perception is negligible. Not only did the MANOVA comparison for the female negative-control fail to achieve signifi-

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Figure 6. Summary of the univariate analyses of variance (ANOVA) conducted on individual trait ratings.

	A1-V1 (Female Control - Female Positive)		A2-V3 (Male Control - Male Negative)		A2-V4 (Male Control - Male Positive)	
	<i>p</i> -value	Significance	<i>p</i> -value	Significance	<i>p</i> -value	Significance
Dull/Sharp	0.080	N	0.530	N	< 0.0001	Y
Not Credible/Credible	0.145	N	0.019	N	0.007	N
Incompetent/Competent	0.009	N	0.564	N	0.102	N
Tense/Relaxed	0.002	Y	0.169	N	0.005	Y
Unsure/Confident	< 0.0001	Y	0.877	N	0.088	N
Shy/Outgoing	< 0.0001	Y	0.737	N	0.002	Y
Afraid/Brave	< 0.0001	Y	0.291	N	0.001	Y
Unfriendly/Friendly	0.267	N	0.067	N	0.244	N
Not Humorous/Humorous	0.032	N	0.010	N	0.068	N
Stupid/Intelligent	0.306	N	0.019	N	0.030	N

Figure 7. Summary of the mean change in trait ratings between the control and positive samples for both speakers.

Adjective Pairs	Mean Difference Between V1 (Female Positive) and A1 (Female Control)	Mean Difference Between V4 (Male Positive) and A2 (Male Control)
Dull/Sharp	0.82	2.27
Not Credible/Credible	1.09	1.55
Incompetent/Competent	1.91	1.00
Tense/Relaxed	2.18	2.18
Unsure/Confident	3.27	1.18
Shy/Outgoing	2.82	1.91
Afraid/Brave	2.55	2.45
Unfriendly/Friendly	-0.45	0.55
Not Humorous/Humorous	1.36	1.18
Stupid/Intelligent	0.64	1.36

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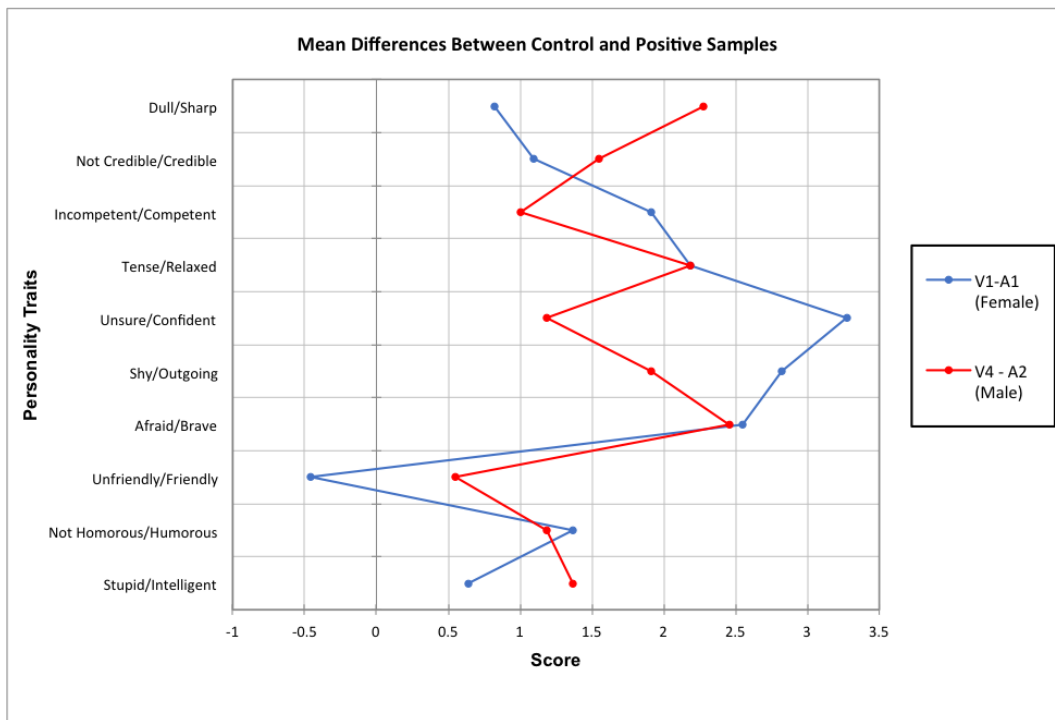


Figure 8. Graphical representation of the mean change in trait ratings between the control and positive samples for both speakers.

cance (Figure 5), but the ANOVA for male negative-control also failed to find significant differences between individual trait ratings (Figure 6).

## Sex of the Speaker, Kinesics, and Perception

A separate analysis was conducted to determine if the change in perception for the male speaker was significantly different from that of the female speaker. While the vastly different kinesics scores for the negative samples (6.6 for male, 11 for female) made it inconsistent to compare the changes in perception from control to negative, the similarity in kinesics scores for the positive samples (19.6 for male, 17.4 for female) allowed for a meaningful comparison. The data used for this analysis are summarized below.

A MANOVA,  $F(10, 24) = 5.700, p = 0.004$ , performed on these data found that there was a significant difference in the change in perception between the male and female speakers. However, post-hoc testing revealed that only the changes in ratings for the unsure/confident adjective pair between the speakers were statistically significant ( $p = 0.003$ ). These trends

suggest that kinesics has a different effect in shifting overall perceptions of male and female PWS. This is especially prominent for ratings of confidence, where the female speaker benefited much more from positive kinesics than did the male speaker.

## Discussion

The three main findings from the data are explored below. The results show that positive kinesics has a significant effect on perception, kinesics has a significantly different effect on the perception of male and female speakers, and the perceptions of PWS may have shifted over time.

### Effect of Kinesics

The results of this study demonstrate that positive kinesics has a pronounced effect in shifting perceptions favourably, with the largest effect on surface traits associated with behavior (tense/relaxed, shy/outgoing, afraid/brave). On the other hand, cognitive traits (stupid/intelligent, not credible/credible, incompetent/competent) experienced an insignificant posi-

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tive change from positive kinesics. While there is no research examining the effect of kinesics on the perceptions of PWS, the findings of this study complement research conducted by Miller et al. (2015) and Blalock (1973). Miller et al. finds that negative media portrayals of PWS had a negative effect on perception and, conversely, that more positive portrayals of PWS had a positive effect on perception. However, Miller et al. found that the positive effect did not reach significance for any individual traits. Blalock's study, which focused on the perception of messages in a business environment, similarly concluded that the use of positive body language had a favourable effect on overall message perception. Furthermore, Blalock reported that the perception of messages from speakers with negative vocalization is not significantly affected by the use of negative kinesics. The results of this study, which show that negative kinesics has a negligible effect on the overall perception of PWS, confirm Blalock's previous findings.

### Effect of Gender and Kinesics

This study also concluded that kinesics has a significantly different effect on the perception of male and female speakers. As concluded from the analysis in the previous section, this is especially prominent for ratings of confidence, where the female PWS benefited much more from positive kinesics than did the male PWS. Although not focusing specifically on the effect of kinesics and conducted on subjects of both genders, previous research has suggested that listeners' perception is affected by the sex of the speaker. A study conducted by Burley and Rinaldi (1986) noted that there were significant differences in the rating of male and female PWS, where listeners were likely to rate male speakers more positively. An explanation for the difference in the way kinesics affects the perceptions of male and female speakers observed in this study may be found in another study conducted by Koppensteiner and Grammer (2011). The study examined how the body movements of male and female speakers affected viewers' perceptions of personality. Participants viewed videos of public performances where the speakers' movements were rendered into stick figure movies. The results showed that stick figures representing male speakers were rated more favourably than stick figures representing female speakers. Therefore, the researchers suggest that there

is a difference in the body language of males and females, which influences viewers' perceptions of their personality. The participant responses from this study demonstrate a marked difference in the way kinesics affects the perceptions of male and female PWS, affirming the conclusions from Koppensteiner and Grammer.

### Contemporary Perceptions of Stuttering

Lastly, the current study provides evidence that the perceptions of PWS may have shifted over time, reflecting a greater acceptance of stuttering. Although this study found that listeners rated PWS in the control sample to be tense, shy, and afraid, it also found that listeners rated PWS to be friendly, sharp, competent, and intelligent. This contradicts earlier studies, which found that listeners had negative baseline ratings for all personality traits. For example, Woods and Williams (1976) concluded that listeners ascribed undesirable traits, such as stupid and unfriendly, to male PWS. Collins and Blood (1990) drew the same conclusion with female PWS. These differences in findings might be attributed to the fact that the PWS in this study shared personal experiences with stuttering, which could skew the results positively. However, more recent studies conducted by Gabel (2006) and Miller et al. (2015) show that listeners are starting to rate PWS more positively, which is a trend reflected in the results of this study.

## Conclusions

### Implications, Limitations, and Future Research

Understanding the different factors that affect the perceptions of PWS is key to shifting those perceptions. This study shows that there is a significant positive effect on perception associated with positive kinesics. These findings have larger social and clinical implications that can help PWS improve their interaction with others. PWS can use this information to both empower themselves and change the attitudes of those around them. Furthermore, by integrating positive kinesics building techniques into speech therapy, speech language pathologists have another tool to help PWS build confidence and cope with their speech disorder.

Several limitations to this current study warrant discussion. First, the small sample size reduces the generalizability of the results. Since the participants were only chosen from an all-boys private boarding school, extrapolation of these conclusions to the greater population would be erroneous. Furthermore, the use of two different speakers may have introduced confounding variables. Although measures were taken to ensure that the speakers featured in the videos had similar physical appearances, not all the visual factors could be controlled. For example, one female speaker was blonde and wore glasses while the other was a brunette woman who did not wear glasses. In addition, one male speaker had slightly darker skin and facial hair. Though these differences may affect the data, there should not be a significant difference in the way the speakers are evaluated.

While this study has established the link between kinesics and the perceptions of PWS, further research could be done to determine the effect of kinesics on listeners' physiological and emotional responses to stuttered speech. A previous study identified that listeners respond negatively to stuttered speech through a variety of physiological responses, such as a lower heart rate, a lower breathing rate, and the tendency to avoid eye contact with the speaker (Guntupalli, Everhart, Kalinowski, Nanjundeswaran, & Saltuklaroglu, 2007). The study also found that listeners responded with negative emotions, such as discomfort, embarrassment, and unhappiness. Given the positive effect of positive kinesics on listeners' perceptions of PWS, there is potential that positive kinesics could also mitigate negative listeners' responses.

Even though there exists a negative perception of people who stutter, this study provides compelling evidence that these perceptions can be favourably changed with positive kinesics. The understanding gained from this study can help inform useful practices in speech language therapy that can help people who stutter to better approach their interactions with others. Indeed, there is still more to discover in the different factors that influence the perceptions of people who stutter. By gaining a greater understanding of these factors, such as kinesics, people who stutter are able to empower themselves and potentially mitigate the complications associated with a negative perception.

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## Appendix A – Semantic Differential Survey

**Cheetahs are:**

Slow	1	2	3	4	5	6	7	Fast
------	---	---	---	---	---	---	---	------

**The speaker in the audio clip is:**

Dull	1	2	3	4	5	6	7	Sharp
------	---	---	---	---	---	---	---	-------

Not Credible	1	2	3	4	5	6	7	Credible
--------------	---	---	---	---	---	---	---	----------

Incompetent	1	2	3	4	5	6	7	Competent
-------------	---	---	---	---	---	---	---	-----------

Tense	1	2	3	4	5	6	7	Relaxed
-------	---	---	---	---	---	---	---	---------

Unsure	1	2	3	4	5	6	7	Confident
--------	---	---	---	---	---	---	---	-----------

Shy	1	2	3	4	5	6	7	Outgoing
-----	---	---	---	---	---	---	---	----------

Afraid	1	2	3	4	5	6	7	Brave
--------	---	---	---	---	---	---	---	-------

Unfriendly	1	2	3	4	5	6	7	Friendly
------------	---	---	---	---	---	---	---	----------

Not Humorous	1	2	3	4	5	6	7	Humorous
--------------	---	---	---	---	---	---	---	----------

Stupid	1	2	3	4	5	6	7	Intelligent
--------	---	---	---	---	---	---	---	-------------

## Appendix B – Definitions Sheet

### Definitions

Sharp- Quick thinker; clever

Dull- Slow thinker; foolish; unskilled

Credible- Believable; trustworthy

Not Credible- Not believable; untrustworthy

Competent- Capable; having the ability to do what is needed

Incompetent- Incapable; not having the ability to do what is needed

Relaxed- At ease; free; comfortable

Tense- Tight; rigid; anxious

Confident- Self-assured; believes in oneself

Unsure- Uncertain; hesitant

Outgoing- Friendly; socially confident

Shy- nervous around others; timid

Brave- showing courage; ready to face danger

Afraid- filled with fear; scared

Friendly- pleasant; kind; easy to get along with

Unfriendly- Mean; unpleasant; hard to get along with

Humorous- Amusing; has a good sense of what is funny

Not Humorous- Unamusing; does not have a good sense of what is funny

Intelligent- Smart; quick to understand

Stupid- Not smart; slow to understand

## Appendix C – Video and Audio Transcripts

### Female A1

People think that I've forgotten their name

03:38

when I hesitate before saying it.

03:42

And it is a very weird thing,

03:45

because proper nouns are the worst.

03:49

If I'm going to use the word "Wednesday" in a sentence,

03:53

and I'm coming up to the word,

03:56

and I can feel that I'm going to stutter or something,

03:59

I can change the word to "tomorrow,"

04:02

or "the day after Tuesday,"

04:04

or something else. You know.

04:06

It's clunky, but you can get away with it,

04:11

because over time I've developed this

04:14

loophole method of using speech

04:18

where right at the last minute you

04:21

change the thing and you trick your brain.

04:26

But with people's names, you can't change them.



# THE EFFECT OF POSITIVE KINESICS ON PEOPLE WHO STUTTER

## Female V1

the reactions to my  
03:14  
disability were worst part mom why is  
03:20  
she taking so long honey Oprah didn't  
03:22  
have a stutter don't be so nervous just  
03:28  
talk but I was talking as soon as I saw  
03:32  
myself as they did the world became  
03:34  
clear because I got no one valuing what I  
03:38  
had to  
03:39  
say I started to devalue my own voice as  
03:42  
well and as middle school approached I  
03:46  
did things and acted in a certain way so  
03:49  
nobody would know I was different and if  
03:51  
they found out I would act like my stutter  
03:53  
was no big deal  
  
03:58  
little did I know at the time this  
04:01  
perception of my speech would change my  
04:03  
life  
04:04  
stutter talk with continued involuntary  
04:08  
repetition of sounds especially initial  
04:11  
consonants that's the definition of  
04:15  
stuttering but it's so much more than  
04:17  
just a two syllable word and some  
04:21  
repetitions stuttering  
04:25  
is a complex system of vocal and  
04:27  
neurological work and everyone varies  
04:29  
from the vocal stutter to the secondary  
04:33  
motion

## Female V2

I get through it that way for my job.  
06:22  
But as an artist who feels that their work  
06:24  
is based solely on a platform of honesty  
06:30  
and being real,  
06:34  
that feels often like cheating.  
06:38  
Which is why before I sing, I wanted to tell you  
06:41  
what singing means to me.  
06:45  
It's more than making nice sounds,  
06:49  
and it's more than making nice songs.  
06:54  
It's more than feeling known, or understood.  
07:00  
It's more than making you feel the things that I feel.  
07:06  
It's not about mythology,  
07:09  
or mythologizing myself to you.  
07:14  
Somehow, through some miraculous  
07:19  
synaptic function of the human brain,  
07:24  
it's impossible to stutter when you sing.

## Male A2

and it was finally  
00:40  
might my turn to introduce myself to  
00:47  
the rest of the class I stood up and I  
00:49  
said hi I'm everyone laughed I held in a  
00:57  
few tears of anger and I sat back  
01:00  
down I was sixteen years old and I was  
01:05  
sitting in line at a sonic  
01:08  
Drive through and as I was in my  
01:12  
car again I was silently saying to  
01:16  
myself tater tots tater tots tater tots  
01:21  
I finally made it up to the small ordering window and  
01:27  
the young woman behind it she asked me  
01:29  
hi what would you like and I said hi may  
01:31  
I please have some t and she said what  
01:38  
what was that you want what  
01:45  
I got so frustrated in that moment that I just yelled at her

# THE EFFECT OF POSITIVE KINESICS ON PEOPLE WHO STUTTER

## Male V3

so where does the stammer  
 01:43  
 come from all stammers and stammer is  
 01:47  
 are different but in my case it's a  
 01:51  
 combination of varying degrees of coming  
 01:54  
 from a very literary family with a  
 01:58  
 highly verbose elder brother a genetic  
 02:02  
 shadow of a stammer in my father to  
 02:07  
 a lesser degree and the natural innate  
 02:11  
 self-conscious sensitivity  
 02:14  
 most stammerers grow out of the  
 02:17  
 condition by five years old but some  
 02:20  
 more dedicated stammerers persist male  
 02:25  
stammerers outnumber the females by  
 02:27  
 about four to one it's in fact a basic  
 02:31  
 miracle that speech production develops  
 02:33  
 as normally as it usually does

## Male V4

I was  
 04:35  
 taught to speak softer I was taught to  
 04:38  
 act as if I was singing so the words  
 04:40  
 would flow better I was taught to take  
 04:43  
 big breaths so I wouldn't run out of  
 04:47  
 hair at the end of my sentences and for  
 04:49  
 them for the most part it's all worked I  
 04:52  
 have a good career I have a beautiful  
 04:55  
 partner and I don't freak out as much if  
 04:58  
 I have to answer the phone nowadays  
 05:00  
 however it's all been a sham it's  
 05:04  
 all been a very thin screen  
 05:09  
 over what the real problem I had was see

05:12  
 now that I'm a little older I've seen a  
 05:14  
 little more in the world and I've  
 05:16  
 discovered more about myself I've seen that  
 05:23  
 everything I was taught about  
 05:25  
 my stutter every single thing it was  
 05:28  
 100% wrong completely wrong  
 05:31  
 see I was taught to see my stutter  
 05:38  
 as an issue as a problem an obstacle  
 05:41  
 a challenge as a handicap that I had to  
 05:43  
 overcome in order to have any kind of a  
 05:45  
 happy life

## Stutter Rates

	Stutter Rate
V1	10.8
V2	11.2
A1	11.3
V3	6.1
V4	6.9
A2	7.6

## Appendix D – Kinesics Rating Survey

Bad Body Position/Posture	1	2	3	4	5	6	7	Good Body Position/Posture
Bad Gestures	1	2	3	4	5	6	7	Good Gestures
Bad Facial Expression/Eye Contact	1	2	3	4	5	6	7	Good Facial Expression/Eye Contact

### Kinesics Scores

	Kinesics Score
V1	17.4
V2	11
A1	
V3	6.6
V4	19.6
A2	

## Appendix E – Participant Instructions

### Instructions

Thank you for agreeing to participate in my research project regarding the perceptions of people who stutter (PWS). In this experiment, you will be watching videos of different speakers and rating their personality traits on a semantic differential scale. Some of the personality traits will not be explicitly evident in the video. Please rate those traits based on what you believe they would be based on what you have seen.

On the first survey, you will find an example question that we will fill out together to make sure you know how the scale works. The statement reads “Cheetahs are...” If you believe cheetahs are slow, circle 1. If you believe cheetahs are fast, circle 7. If you believe cheetahs are between fast and slow, circle a number in between. Does that make sense?

Please rate all the traits relative to the previous clips. Please have a look over the definitions sheet to familiarize yourself with the terms.

We will now begin the experiment. You will be watching and listening to a series of 2 audio clips and four videos. After each, please fill out the corresponding survey form (for clip A1, fill out form A1). If you are unsure about any of the personality adjectives, please refer back to the definitions sheet.

## Appendix F – Screening Survey

### Participant Screening Survey

Are you currently failing an English course?

Yes \_\_\_\_\_ No \_\_\_\_\_

Do you suffer from learning disabilities?

Yes \_\_\_\_\_ No \_\_\_\_\_

Do you have any hearing or visual impairments?

Yes \_\_\_\_\_ No \_\_\_\_\_

Is English your primary language (i.e. English is the language you use the majority of the time)

Yes \_\_\_\_\_ No \_\_\_\_\_

Does anyone close to you (family member, close friend) stutter?

Yes \_\_\_\_\_ No \_\_\_\_\_

Do you or have you ever stuttered?

Yes \_\_\_\_\_ No \_\_\_\_\_

## Appendix G – Consent Forms

Dear Parent/Guardian,

I have been selected to participate in the AP Capstone Research Program. The aim of this program is to encourage and support high school students in producing meaningful and valuable research. At the end of the year, this research will be submitted to the College Board, with the goal of being published in an academic journal. This research has been approved by my teacher, \_\_\_\_\_, and an internal ethics review board.

My research will focus on understanding the different factors that affect the perception of people who stutter (PWS) by adolescents. The participants in my project will be students in grades 9, 10, 11, and 12. Participation in this research will involve the completion of a consent form, screening survey, demographics survey, watching video clips of different speakers, and questionnaires that will determine your son's attitudes towards each speaker. All clips have been screened by adults and other students to ensure that the language use was appropriate. The data collection will take place after class time, and it is expected to take about 30 minutes.

All information collected in my research will be treated confidentially and no participants will be identified by name in any publication resulting from the research.

First and foremost, the results of my research will allow the academic field to gain valuable information about how stuttering is perceived by adolescents. Beyond this, the study may also help participants gain a better understanding of stuttering and increased exposure to the academic research process.

Student participation in this research project is voluntary and no student will be disadvantaged through non-participation. Participants may also withdraw from the study at any time or abstain from answering any question.

# THE EFFECT OF POSITIVE KINESICS ON PEOPLE WHO STUTTER

Attached to this information sheet is a form seeking consent from both you and your son for him to participate in this research project. Upon signing, please have your son return the form to me, either by hardcopy or via email.

Please do not hesitate to contact me by email at \_\_\_\_\_ or by phone at \_\_\_\_\_ if you have any questions regarding this research. If you have any further questions, you can also contact my research advisor and teacher \_\_\_\_\_ by email at \_\_\_\_\_.

Yours sincerely,

\_\_\_\_\_  
Grade 12 AP Research Student

## Parent and Student Consent Form

### Perceptions of People Who Stutter

I, ..... (Student) consent to my participation in this AP Research Project.

I, .....(Parent/Guardian) consent to my son's participation in this AP Research Project.

I have read the information sheet provided and understand the purpose and nature of the research.

I give permission for my son to view video clips that do not contain nudity, violence, or explicit language and for any survey data collected from my son to be recorded and analyzed.

I understand that any information or personal details gathered during this research are confidential and that my son's name or any other identifying information will not be used or published in the presentation of the research findings.

I understand that participation in this research is voluntary and that my son can withdraw from the research at any time, knowing that there will be no penalty or discriminatory treatment for doing so.

Signed (Student) .....  
Date.....

Signed (Parent/Guardian).....  
Date.....