

# How to Improve Emotional Intelligence and Social Skills among Adolescents: The Development and Test of a New Microexpressions Training

Pelin Ensari

Santa Margarita Catholic High School, Rancho Santa Margarita, California, USA

Email: [pelein.ensari@smhsstudents.org](mailto:pelein.ensari@smhsstudents.org)

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## Abstract

This study focused on the development of emotion recognition of adolescents through the use of a microexpression training. The results showed that the new microexpression training developed for adolescents significantly affected the adolescents' ability to detect microexpressions, however, it did not change their overall emotional intelligence and social skills. It was also found that girls had a better ability of detecting microexpressions, before and after the training. Emotion recognition is an essential element of emotional intelligence, therefore, the present study makes an important contribution by developing, and showing effectiveness of a new microexpression training designed for adolescents.

## Keywords

Emotional Intelligence, Microexpressions, Training

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## 1. Introduction

People have a fascination with exploring others' emotions, but true emotions are usually concealed from us. Unfortunately, we cannot read other's minds, and will never truly know what they feel. Instead, we rely on our impressions and social perceptions, putting them together as well as we can, hoping they will lead to reasonably accurate conclusions about others. Only few people can accurately recognize hidden emotions [1], however, with modern advances in psychology, we can train people to improve emotion recognition. Training adolescents on recognition of emotional microexpressions may have important outcomes such as improvement of emotional intelligence, social skills and communication.

## 2. Emotional Intelligence (EI)

Emotional intelligence is the capacity to reason about emotions, and for emotions to enhance thinking [2] [3]. An individual who has high EI has better social relations, can solve emotional problems quicker and easier than others, is strong in verbal, social and other intelligences, is less apt to engage in problematic behaviors, and avoids self-destruction and negative behaviors such as smoking, drug abuse and violence [2] [4]. EI has to do with discerning and understanding emotional information that is commonly used in daily life. For example, when your friend doesn't want you to reveal her secret publicly, she may use facial cues, such as a widening of the eyes or shaking of the head to express her anxiety and fear about revealing her secret. Understanding her anxiety and fear through an observation of her facial cues is a sign of high EI. Recognizing non-verbal behaviors that reflect our emotions is a critical component of communication.

### 2.1. The Four Branches of EI

Emotional intelligence consists of four branches: perceiving emotions, using emotions to facilitate thought, understanding emotions, and managing emotions [2]. *Perceiving emotions* is the most basic branch that has to do with nonverbal receptions and expressions. The ability to perceive emotions is not constricted only to humans but also it extends to animals. The second branch, *using emotions* to facilitate thought, seems as basic as the first. It is the capacity of emotions to enter into the cognitive system then guide it to promote thinking. Cognitive scientists point out that emotions prioritize thinking [2]. Basically, this means that when we react to something emotionally it grabs our attention. Therefore, excellent emotion input helps prioritize matters. *Understanding emotions*, which is the third branch, is associated with understanding emotional messages and the actions that follow. For instance, an emotional message for anger may indicate that this individual is annoyed or frustrated from being treated unfairly. This then causes sets of actions that the individual follows through: attacking, peacemaking, revenge, etc. Fully understanding emotions involves the comprehension of the meaning of emotions, coupled with the capacity to reason about those emotions. Finally, people can *manage their emotions* (4<sup>th</sup> branch) to the extent that is under voluntary control. They may remain open to emotional signals, until they become overwhelming and negative. Because they can manage their emotions they can now promote their own personal and social goals.

### 2.2. Why Is It Important to Study EI?

The term EI became famous when Daniel Goleman's 1995 book that claimed that EI matters more than IQ. IQ reflects ability in verbal, mathematical, mechanical skills, as well as memory, and predicts academic performance in school very well. However, Goleman (1995) [5] argued that an IQ score does not predict our success and happiness in life. Instead, a person's ability to use his/her

emotions and identify others' emotions accurately predicts his/her mental and physical health as well as general success.

Emotional intelligence benefits humans in ways such as physical health, mental well-being, social relationships, conflict resolutions, success, and leadership abilities (See Tang & Yin, 2012 [6] for a meta-analytic summary). Physical health is the ability to take care of our bodies and manage stress. When people have higher EI, they are more aware of their own emotional states and reactions to stress. EI affects a person's attitude and outlook on life by helping to decrease anxiety, depressions, and mood swings. Higher EI also results in a healthier, happier outlook on life. Social relationships are greatly impacted from better EI because of a person's greater ability to understand and manage their emotions. This allows him/her to communicate more constructively with others and understand their needs, feelings, and responses. EI allows people to discern others' emotions and empathize with them, which in turn simplifies the process of resolving conflicts. Having a higher EI leads to a more successful life because it help people to reduce procrastination, increase self-confidence, and improves the ability to focus on specific goals [2]. Finally, more effective leaders are able to recognize the needs of their colleagues because of their higher emotional capacity and intelligence [7].

### 2.3. Social Skills and EI

Social skills are the lubricants of social life which help individuals interact in mutually beneficial ways. Interpersonal (social) skills are measures of how adept people are at interacting with others. Assertiveness, communication, conflict resolution, and anger management are all part of social skills (*Interpersonal Skills*). Assertiveness is the expression of a person's beliefs without the violation of other's. With better social skills, communication skills improve because of the person's greater ability to use both listen and speak effectively. Having good social skills also results in the ability to control anger, helps the achievement of goals and improves problem-solving skills. High EI is associated with key social outcomes including cooperation, self-management, social awareness (empathy), and relationship management. Saarni (1999) [8] stated that having emotional competence is a crucial component in social development and contributes to the quality of interpersonal relationships. Schutte *et al.* (2001) [7] executed a study in which 77 participants completed an EI measure as well as the Social Skills Inventory by Riggio (1986) [7] [9]. The results showed that participants with higher scores of EI had higher scores of empathetic perspectives, self-monitoring, and social skills [7]. In conclusion, there is a positive association between EI and social skills such that people who have high EI are more successful in social relations.

### 2.4. Universal Expressions

Charles Darwin [10] first proposed the idea that both man and animals were able to recognize universal expressions in his book *The Expressions of the Emotions in Man and Animals* (1838). Then, in the 1970s the idea of universal facial

expressions came up again with newer cross-cultural data [11] [12]. The focus on universal expressions was mainly executed by Ekman, who showed photos of Caucasian people showing facial expressions to people from different cultures and asked them to choose the correct emotion on the photo [13].

The results showed that people from both Western and non-Western cultures were correctly able to label happiness (#5), anger (#1), fear (#2), sadness (#6), disgust (#3), and surprise (#4). Ekman and Friesen's (1969) [14] study conducted in New Guinea, which is a visually isolated preliterate culture that is not influenced by mass media input, supported earlier studies in that everyone can distinguish surprise from anger, fear, sadness, disgust, and enjoyment, they were unable to distinguish surprise from fear.

According to Darwin (1859) [15], primary emotions conveyed by the face are universal, and emotional expressions had survival value for the developing species. Darwin's inhibition hypothesis first brought up the idea of microexpressions where he suggested that "facial actions that cannot be controlled voluntarily may be produced involuntarily even if the individual is trying to control his or her expressions" [16]. Microexpressions are emotional displays that are quick and usually occur when one is under the pressure to conceal or mask his or her emotions and last around 1/25 to 1/15 of a second. These "pressures" exist regularly in daily life such as a function of culture, status, politeness, context, etc.

Haggard and Isaacs (1966) [17] were the first scientists who discovered microexpressions; however, they called them "micro-momentary" expressions. They detected them while scanning motion picture films of psychotherapy hours, searching for indications of non-verbal communications between the patient and therapist. They explained that these expressions occurred because the patient did not know what he or she was feeling. A few years later, Ekman and Friesen (1969) [14] proved that microexpressions could be perceived in real time. They also provided the real reason as to why microexpressions occurred; people tried to conceal their emotions from others or they were trying to conceal their emotions from themselves through repression.

### 3. Microexpression Trainings

A study executed by David Matsumoto focused on the recognition of microexpressions through the use of the Micro-expression Recognition Training Tool (MiX) [16] [17] [18]. This training is not the same training that Paul Ekman has created, commonly referred to as the Micro-expression Training Tool (Mett). There were 81 participants in Matsumoto's study, all from Seoul, South Korea (the mean age was 30 years). The results came out as hypothesized: the training group increased in their MiX scores from pre-test (mean = 0.47) to post-test (mean = 0.65). The control group showed no change: pre-test (mean = 0.49) directly to post-test (mean = 0.50), with thought the MiX [16]. Matsumoto also measured the group's social skills before and after the training. As expected, the training group had significantly higher scores (mean = 2.88) than the other group (mean = 2.38) ( $p < 0.05$ ) [16]. Thus, microexpression trainings have been

found to be effective.

Most of the current microexpressions training programs have been applied to adults only [19] [20] [21]. The effectiveness and impact of these training programs on social skills have never been tested on children and pre-teens before [22] (See Chisa and Rusua, 2016, for a summary of the research on EI and academic achievement in adolescents). This shows a major flaw in research because, according to Montepare *et al.* (1999) [23], older adults have a harder time distinguishing emotions. In a two-part study of decoding of emotion through non-verbal behaviors, it was found that older adults made more overall errors in identifying emotions depicted in videotaped displays of actors portraying emotional situations [23]. The results of this study also showed that older adults made more errors identifying emotional displays that are negative in content. Although young people are more accurate in emotion recognition, research on non-verbal behaviors and EI of young people are very limited, despite their advantages during social interactions. If people were taught at a younger age to read microexpressions, it would have a better impact on them throughout their lives because they would be able to apply it better. Therefore, developing a new microexpressions training specifically designed for adolescents and testing its effects on social skills fills an important gap in the literature.

### Deception and Microexpressions

When a person lies, he or she will try to inhibit facial expressions in the attempt to deceive others. According to Darwin (1859) [15], the facial nucleus transmits impulses to specific facial muscles and receives impulses from different parts of the brain. In other words, the brain signals the facial muscles that when the person is lying, he or she must also suppress their facial expressions. When a muscle is activated involuntarily, the person cannot prevent it from contracting, therefore, it is extremely difficult for a person to give away no hints while lying. Certain emotions, such as sadness, disgust, anger, and fear, are difficult to constrain, therefore, they betray how a person feels even when he or she attempts to conceal that information. Ekman (2003) [1] shows, by observing videotapes of people lying, that these emotions somehow reflect across the face no matter what the person tries. These brief flashes of sadness, disgust, anger, and fear are microexpressions. However, microexpressions do not always have to occur when someone is lying, which means that just because there is no microexpression, it doesn't always mean that the person is truthful. Ekman (2003) [1] supported his theory in a line of study. For instance, he asked participants to lie about different movies they have watched. His results showed that a quarter of the liars showed microexpressions. Deception and microexpressions are an extremely controversial topic because there is no true way of identifying whether a person is lying or not, there are only hypothetical clues.

The main purpose of the current study was to explore the effects of a micro-expression training designed for adolescents on emotion recognition, emotional intelligence and social skills. Based on prior research and theories of EI, it was

hypothesized that the microexpression training will increase the emotion recognition ability of adolescents (Hypothesis 1), the microexpression training will improve emotional intelligence of adolescents (Hypothesis 2), and the social skills of adolescents (Hypothesis 3).

## 4. Methods

### 4.1. Participants

The main study included 132 adolescents (84 in the treatment group, and 48 in the control group) who are 7<sup>th</sup> and 8<sup>th</sup> grade students in a Junior High school in Orange County, California. The average age was 12.7 years. 49.4% of the participants were Asian, 16.1% were Caucasian, 6.1% were Hispanic, and 1.1% were African-American. The permission from the school was obtained to ensure that the study conforms to the ethical standards (See **Table 1**).

### 4.2. Procedure

*Pilot Study:* The pilot study was conducted to ensure that the training was comprehensible, and the microexpressions were presented at a reasonable speed. 16 people (11 students, ages between 12 - 14 and 3 adults) were gathered to test. Although the training is for adolescents, the adults' perception of the training was important in order to receive general consensus on the effectiveness of the training. First the participants of the pilot study were given the practice, and were warned about the speed of the microexpressions and asked to pay attention to the entire face. They were then given the shortened version of the training and asked to complete the microexpressions' pretest. After they completed the pretest, they were asked whether they had any questions or comments.

*Main Study:* Permission from the supervising teachers has been obtained to conduct the experiment during their class time. The experiment was conducted with 7<sup>th</sup> and 8<sup>th</sup> grade students on the same day so that the group size and the timing of the training were controlled. The time between the pretest and posttest administration was 4 days for the treatment as well as for the control group.

First, the emotional intelligence (EI) and social skills (SS) questionnaires were handed out to the participants. Two days later, the experimenter went to their classroom, and started the experiment. The experiment started with the completion of the pretest measure (as described below). Next, the training was conducted as described below. Throughout the training, interaction was encouraged through the use of mirrors. Four days later, the posttest measures were administered for the control group; however, there was no pretest and posttest for the emotional intelligence and social skills questionnaire.

**Table 1.** Demographic overview of the participants.

Age (Average)	12.7 years
Ethnicity	49.4% Asian, 16.1% Caucasian, 6.1% Hispanic, 1.1% African-American

### 4.3. The Development of the Microexpression Training

The examination of the past research and current emotion recognition and microexpression training programs indicated that there is no such training designed for children or adolescents. This study required a microexpression training for adolescents, therefore, it was decided to develop a new one based on the Mett 3.0 [12].

**Preparation of the Photos and Videos for the Training:** The first step was to find at least eight actors (4 boys and 4 girls, ages 13 - 14). These actors were initially trained on how to exhibit the 7 universal emotions (happy, contempt, sad, anger, surprise, disgust, fear). A quiet place was found to take pictures and videos. The background used was as neutral as possible, so it would not pose as a distraction during the training. Once the actors learned and successfully expressed these emotions. The experimenter took pictures of each actor expressing each emotion. Then the experimenter took videos of the actors. In the videos, the actor started in a neutral pose, slowly expressed the emotion, and returned back to the neutral pose. The video was later slowed down by 25% so that all the motions of the face could be recognized during the training. This procedure was taken from Ekman's training (2016) [12].

**Development of the Training:** The training first starts with a brief overview of emotional intelligence, microexpressions, universal emotions, and ten to fifteen facial muscles along with a diagram. The purpose is to introduce the basic concepts to the participants. To then teach the basic emotions and their expressions, these steps were followed:

- a. The first slide has a brief description of the emotion followed by one or two facial muscles involved in exhibiting the emotion and finally the motion cues of the emotion. On the first slide, there is a picture expressing the emotion with arrows pointing to the key facial muscles. This picture does not have to be one of the actors.
- b. The second slide is the slow-motion video of an actor.
- c. The third slide consists of a final image of the emotion expressed by an actor.
- d. On the third slide, there is an instruction asking participants to look into a mirror and try to express the emotions themselves. The trainer corrects the participants who have difficulty making the expression until they successfully express each emotion. Self-expression is an important feature of the training, based on Ekman's (2016) [12] and Matsumoto's trainings [16]. These steps are repeated for each emotion.

After all the emotions have been presented there should be a slide that focuses on the importance of the training and how it might affect emotional intelligence and social skills. The final slide consists of how microexpressions can be used in detecting a lie. There is a picture showing the difference between a real smile and fake smile from a study conducted by Duchenne (1862) [24]. During this slide, the trainer speaks briefly about how a small glimpse of a microexpression can aid in detecting a lie. After the slides were put together, they were reviewed mul-

tiple times to ensure completion and accuracy. Several psychologists who are experts in this area were consulted to gain a confirmation on the training.

**Development of the Microexpressions' Pretest Measure:** First, two photos reflecting each emotion (thus 14 photos for 7 emotions) were selected. Each photo was carefully selected by matching it with Ekman's online images for emotions (2016) [12]. These 14 photos were presented in a random order using Windows Live Movie Maker. A number from 1 - 14 was assigned to each photo. These numbers corresponded to the numbers on the answer sheet.

The microexpressions were presented for 60 milliseconds sandwiched in between two one-second presentations of the same actor's neutral face. This is following Ekman's (2016) [12] and Matsumoto's [16] instructions in their training. Before the pretest was presented, based on Ekman's training, a short practice was introduced to get the participants familiar with how they will be tested. The practice had only 3 microexpressions that were not used in the pretest. After each microexpression, the answer showed up on the screen.

**Development of the Microexpressions' Posttest Measure:** The 5 step procedure used to develop microexpressions' pretest measure was also followed to develop the posttest measure. The photos used in pretest and posttest were different.

**Development of the Emotional Intelligence and Social Skills Questionnaires:** The questionnaire consisted of 45 statements in which the participant had to rate themselves (1 = strongly disagree and 5 = strongly agree). The first 30 statements were about emotional intelligence and the last 15 measured social skills. The statements were taken from JobTips—Social Assessment website and (Hunsaker, 2001; Robbins & Hunsaker, 2011) [25] [26].

#### 4.4. Design

This study uses a nonequivalent control group pretest-posttest design which is a type of a quasi-experimental design (See **Figure 1**). This design has a treatment (training) and a control (no training) group so that the effect of the training (*i.e.*, the treatment group should show improvement in comparison to the control group) can be shown. Additionally, it included a pretest which allowed me to observe the change in scores from the pretest to the posttest. However, it lacks equivalence because the participants were not randomly assigned because the training was conducted in large groups (15 - 20 at a time).

The data collection was completed in 2 months. The results in this study were analyzed through the statistical software package for social sciences (SPSS). A paired t-test was used to compare the means of the treatment and control groups.



**Figure 1.** The illustration of the quasi-experimental pretest-posttest design.



## 5. Results

### Hypothesis Testing

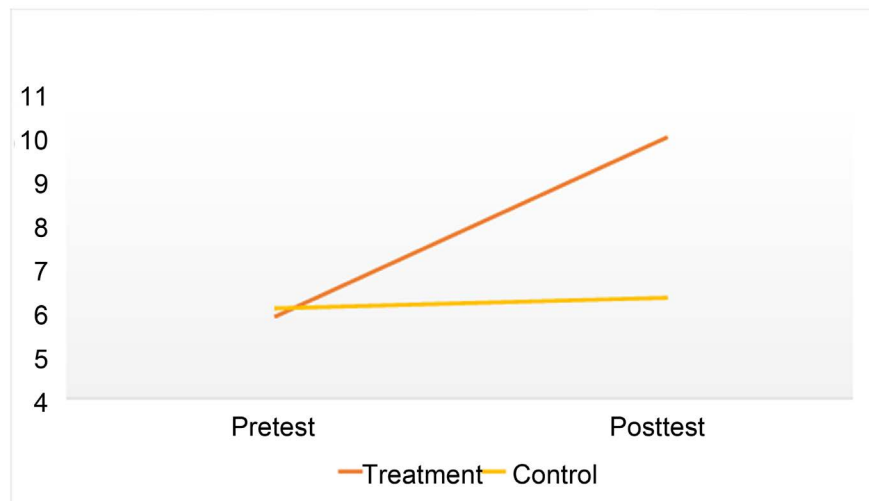
The results showed that the mean of the treatment group increased from the pretest ( $M = 5.61$ ) to posttest ( $M = 9.83$ ),  $t(83) = -14.52$ ,  $p = 0.001$ , Cohen's  $d = -3.19$  (See **Figure 2**). Therefore, it was concluded that the microexpression training improved the emotion recognition ability of the participants. However, when the control group was analyzed, there was no significant difference between the means of pretest and posttest ( $M = 5.81$  and  $6.06$  respectively),  $t(47) = -0.71$ ,  $p = 0.48$ . Thus the slight difference between pretest and posttest means was simply due to luck. Overall, the microexpression training proved to be a vital factor in increasing the emotion recognition ability of adolescents.

After the main study was evaluated, the gender differences were also looked upon (**Figure 3**). The treatment and control groups were combined when analyzing the gender differences. The pretest means were compared between the boys and girls ( $M = 5.29$  and  $M = 6.27$  respectively), the girls had a higher pretest score than the boys,  $t(129) = 2.70$ ,  $p = 0.008$ , Cohen's  $d = 0.48$ . Then the posttest means were evaluated between the boys and girls ( $M = 8.10$  and  $M = 8.98$  respectively), the girls had a higher mean than the boys, however, it was only marginally significant ( $t(128) = 1.80$ ,  $p = 0.08$ , Cohen's  $d = 0.32$ ). When the treatment and control group were looked at separately, the girls' from the treatment group had a difference in mean from pretest to posttest:  $6.12$  to  $10.42$  while the boys' increased from  $5.32$  to  $9.40$ . Thus, it was concluded that girls had a better understanding of the emotion recognition of microexpressions than boys.

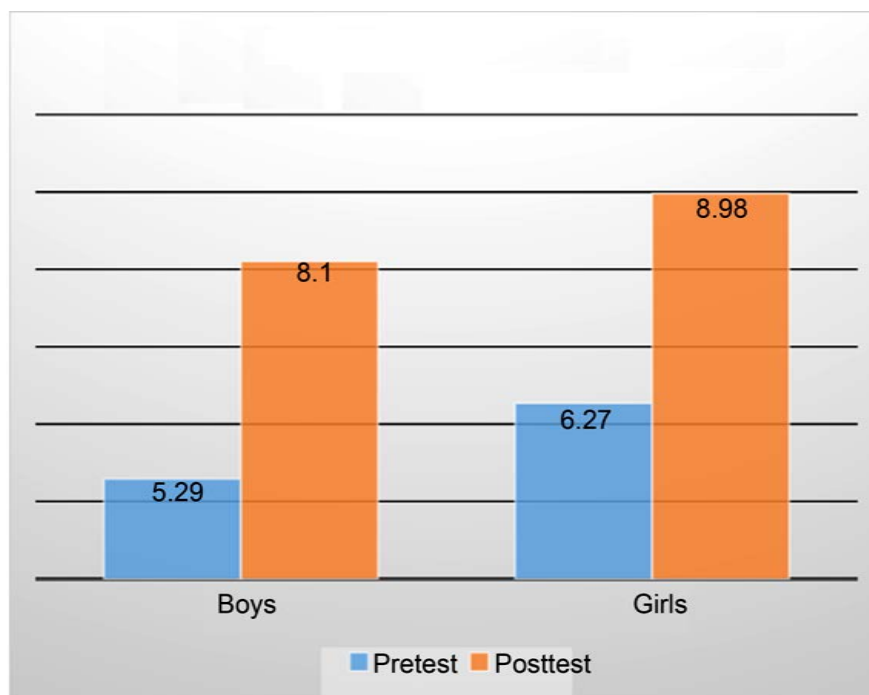
This study consisted of one manipulated variable (training vs. no training) along with several responding variables (emotion recognition of microexpressions, emotional intelligence, and social skills). The emotional intelligence (EI) and social skills (SS) of the adolescents were analyzed through the use of a self-evaluating questionnaire. There were 30 questions for emotional intelligence, and 15 for social skills. The scores for these questions were averaged to calculate a composite EI and a composite SS score for each participant. The reliability alpha was 0.81 for pretest EI and 0.85 for posttest EI. The reliability alpha was 0.76 for pretest SS, and 0.77 for posttest SS, which shows that there is internal consistency within each measure. These composite scores were used in the following analyses.

The results showed that EI did not significantly increase from pretest to posttest ( $M = 3.46$  and  $M = 3.50$  respectively),  $t(82) = -0.97$ ,  $p = 0.33$ . It was also shown that the social skills did not increase from pretest to posttest ( $M = 3.56$  and  $M = 3.54$  respectively),  $t(78) = 0.51$ ,  $p = 0.61$ .

Although the overall emotional intelligence and social skills of the adolescents did not increase, there were two specific questions that dealt with the understanding of others' emotions: item 18 and item 25 from the questionnaire (**Figure 4**). Item 18 was worded as written, "*By looking at their facial expressions, I recognize the emotions people are experiencing.*" The mean for this item increased from pretest to posttest ( $M = 3.45$  and  $M = 3.73$  respectively),  $t(79) =$



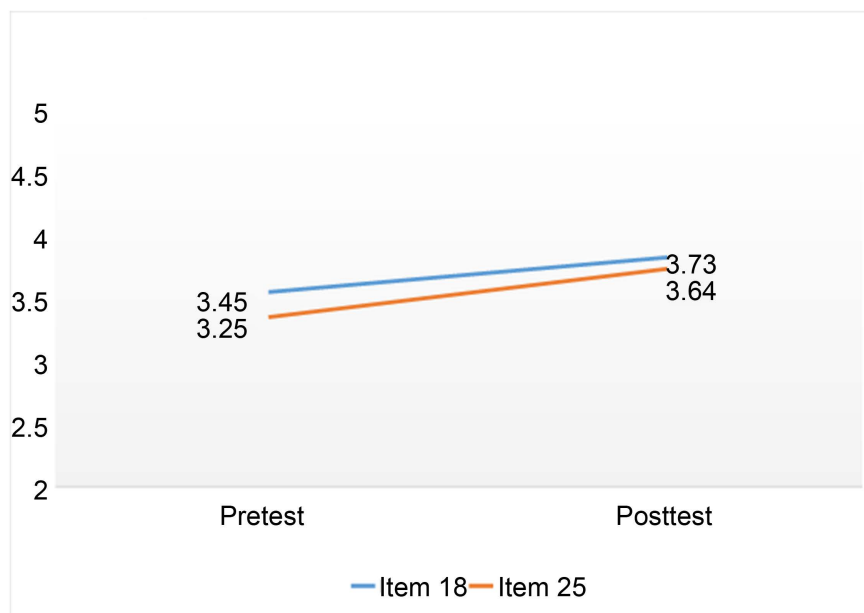
**Figure 2.** Mean of the facial recognition scores of the treatment and control groups.



**Figure 3.** Mean of the facial recognition scores by gender.

-2.12,  $p = 0.04$ , Cohen’s  $d = -0.48$ . Item 25 was worded as written, “*I am aware of the non-verbal messages other people send,*” and the mean increased from pretest to posttest ( $M = 3.25$  and  $M = 3.64$  respectively),  $t(78) = -2.55$ ,  $p = 0.01$ , Cohen’s  $d = -0.58$ . It was concluded that the microexpression training did effect a branch of the adolescents’ emotional intelligence: the recognition of emotions.

There were several other responding variables that were also evaluated, however, these did not have significant differences and impacts on the overall study. The first was ethnicity, there were four different ethnic groups: Asian, African-American, Caucasian, and Hispanic. The differences in the means of these groups were not significant and therefore showed that there is no difference between cultures.



**Figure 4.** Mean for items 18 and 25 from the emotional intelligence questionnaire.

This proves the idea of universal emotions as proposed by Ekman (1965) [13]. Second, age was looked upon and, again, there was no significant differences between 11, 12, 13, and 14 year olds. Finally, there was a comparison between the gender of the participants and the gender of the actors in the microexpression pretest and posttest. Again, there was no correlation between the genders. For instance, it was thought that maybe the boys would be able to recognize the boy actor's emotions better than the girl's, however, this was not supported by the data.

## 6. Discussion and Conclusion

The present study focuses on the change of the emotion recognition of adolescents through the use of a microexpression training. It was found that the microexpression training did significantly affect the adolescents' ability to detect microexpressions. Although the training did not affect the participants' emotional intelligence and social skills overall, it did affect how well the participants recognize emotions. It was also discovered that girls had a better ability of detecting the microexpressions, before and after the training. There are several explanations as to why the results have turned out this way.

This study was based on Ekman's [1] [12] [13] work on microexpressions and his Mett 3.0; however, the idea of using adolescents is quite new. Ekman, along with other scientists such as Matsumoto, conducted experiments in which they test their products. For instance, Matsumoto and Hwang (2011) [16] tested the MiX on Korean participants and found that the training about microexpressions increased the participants' recognition from the pretest to posttest ( $M = 0.47$  and  $M = 0.65$  respectively). However, this is the first microexpressions training designed for adolescents, therefore, it is an important discovery that such a training actually works.

This current study has several other strengths: The training was carefully designed based on Ekman's Mett 3.0 (2003) [1], and reviewed and approved by two social psychologists. The training was done within 2 days to control for timing effect. Also, the training was conducted in a class where the students could pay attention. While researching this topic, it was found that EI was more important than IQ for success in social life, therefore, any contribution to the improvement of EI of adolescents was an important step. It is especially important to point out this is the first study that achieved an improvement in adolescents' ability to recognize microexpressions which are essential components of EI.

It was found that the girls had better abilities at detecting microexpressions. It is natural for the girls to excel in this area because of their place in society and because of gender stereotypes. One explanation is that girls are raised to be more nurturing and sensitive, therefore, they are more likely to be empathetic, and emotionally closer to others in society. As shown in neuroimaging research, women are found to be better at taking other's perspectives, and feeling their pain and experiencing compassion for others than men [27]. They are expected to be more sensitive to others' reactions by the society. Because women are able to build better relationships with others, they are able to detect others' emotions easier. Also, the girls had a higher pretest mean score with a significant p-value, however, in the posttest, the girls' higher mean score was marginally significant which shows that the training affected the boys more. This finding shows that it is more important to focus on training the boys because they are in need of it more.

## 7. Limitations

Because the training affected the emotion recognition of microexpressions of the adolescents, it was thought that it would affect their emotional intelligence and social skills as well; however, this hypothesis was not supported. It has been concluded that the emotional intelligence and social skills of the adolescents did not increase because of the short amount of time (3 weeks) that the results were taken in. It would have been a more ideal situation if the participants had several months. Many social skills trainings are therapy sessions that last for months, so it was a little bit of a long shot to try and improve the social skills of the adolescents. However, the training impacted a critical branch of EI, the ability to recognize emotions, as the scores of the related items on the self-assessment questionnaire increased after the training.

As seen in the data tables, there was a slight, insignificant increase from the pretest to posttest in the control condition. This can easily be explained through the testing effect which states that testing a person's memory will strengthen it, even if there is no feedback. The control group participants were also slightly more prepared for the posttest because they already went through the process. Although there was an increase, it was too slight to have a significant effect on the study.

Additionally, there was a loss of data from the pretest to the posttest, therefore

the sample sizes were not exactly equal. This is a common issue in pretest-post-test studies. Another limitation is that there was no assessment of EI and social skills in the control group due to lack of time in completing data collection. However, in the end, there was no difference in these measures so no valuable information was lost. Finally, although the pictures were taken from students who were trained, it would have been even better to analyze them using the FACS system.

Finally, the final slide of the training was about detecting lie. It is feasible that the participants in the treatment condition paid attention to microexpressions to detect lies, instead of focusing on social skills. Future studies can separate the lie detection skills from social skills to explore their differential effects.

## 8. Social Implications

This study showed that the microexpression training for the adolescents improved a branch of their emotional intelligence. As explained in the research report, emotional intelligence is vital in leading a happy, successful life. This training increased the skills of the adolescents in which they could recognize emotions in others. Once they are able to recognize emotions, the adolescents can now improve their empathy towards others because they are able to see the emotions that others are feeling. This increased empathy improves the relationships that adolescents have with others and this allows for them to live a less stressed social life. Not only are these adolescents able to recognize emotions, they can also spot hints of deception. Microexpressions occur because someone is trying to conceal an emotion, thus, it can be inferred that the person is trying to hide something. If there was more time and if the students were more engaged, there are two more areas that could have been improved with the adolescents: self-recognition of microexpressions and development of social skills. These two areas are important to increasing emotional intelligence and benefiting the adolescents to use their emotions in building and maintaining social relationships.

## 9. Future Research

This experiment is only the beginning of researching the detection of microexpressions of adolescents. Firstly, a more professional training (photos reviewed using the FACS) can be used with a more diverse group of adolescents, thus increasing the reliability of the experiment. Also, detection of subtle expressions can be added so that detecting lies becomes an ability that the adolescents can also learn. This experiment did have one slide that had a brief overview of lies; however, the adolescents were not tested on detecting the lies. Other than the detection of facial expressions, the adolescents can be tested on the effects of these trainings on their social lives. Also, different types of participants can be used because Ekman (2003) [1] has tested his Mett 3.0 on patients with schizophrenia and found that it improved their microexpression recognition. If this same idea was used with adolescent patients and the current study's microex-

pression training, it could lead to a whole new study.

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