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Emotion Understanding and Social Competence in Balanced Bilinguals and Language-Dominant Children

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EMOTION UNDERSTANDING AND SOCIAL COMPETENCE
IN BALANCED BILINGUALS AND LANGUAGE-DOMINANT
CHILDREN

A Thesis

by

KATRINA MEZA

Submitted to the Graduate School of the
University of Texas-Pan American

MASTER OF ARTS

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Major Subject: Psychology

EMOTION UNDERSTANDING AND SOCIAL COMPETENCE
IN BALANCED BILINGUALS AND LANGUAGE-DOMINANT
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May 2010

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ABSTRACT

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The present study investigated the development of emotion understanding and social competence among 106 culturally and linguistically diverse children (50 girls and 56 boys). It investigated if there were differences in the development of emotion understanding and social competence between balanced bilinguals and language-dominant children. Balanced bilinguals outperformed language-dominant children on two advanced tasks of emotion understanding, in which they evidenced an increased understanding that emotions can be based on desires and that emotions can be hidden. Balanced bilinguals and language-dominant children follow a similar developmental trajectory on emotion understanding. There were no significant differences between language groups in social competence ratings, SES, age, and gender.

DEDICATION

I would like to dedicate this thesis to my mother, Oralia Cavazos. She has always held high expectations for me and pushed me to excel.

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I would like to thank my committee members, Dr. Amy A. Weimer, Dr. Philip Gasquoine, and Dr. Darrin L. Rogers, for devoting their time, knowledge, and support. I would like to specifically recognize Dr. Amy A. Weimer for her endless patience and encouragement.

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CHAPTER I

INTRODUCTION

A child's ability to identify and understand others' emotions is critical in various social situations. Several studies have shown the importance of language abilities in the development of emotion understanding (e.g., Cutting & Dunn, 1999). However, few studies have examined multiple aspects of language competence in relation to children's development of emotion understanding.

In particular, there have been few studies on the development of emotion understanding among American children from culturally and linguistically diverse backgrounds. Furthermore, no studies have been conducted on the development of emotion understanding in bilingual children. Previous findings on the development of emotion understanding in children cannot be generalized to culturally and linguistically diverse populations, since these children were not included within the samples tested. In order to fully understand the developmental mechanisms of culturally and linguistically diverse populations, studies must include such subjects.

A child's emotion understanding can influence his or her social competence (Carlo, Knight, Eisenberg, & Rotenburg, 1991). There has been limited research on culturally and linguistically diverse populations on social competence. Since emotion understanding and social competence influence one another, it is important to investigate

the developmental mechanisms of emotion understanding and social competence in bilingual children.

Lastly, it is important to include culturally and linguistically diverse participants in current and future studies, since it has been shown they have been steadily increasing in the past decades. According to the US Census (2000), 47 million (18 percent) people age 5 years and over speak a language other than English at home.

CHAPTER II

REVIEW OF LITERATURE

Emotion Understanding

Children begin to develop emotion understanding as young as two years of age (Dunn, Bretherton, & Munn, 1987; Wellman, Harris, Banerjee, & Sinclair, 1995). There have been distinctive developmental levels identified in emotion understanding, and each level is acquired during an approximate age span. These levels have been shown to develop across early childhood in the following order: recognition of emotions, comprehension of external causes of emotions, understanding that emotions are influenced by desires, and understanding that individuals can hide their emotions (Pons, Harris, & de Rosnay, 2004).

Recognition

By approximately 3-4 years of age, children begin to recognize, match, and name emotions to representative facial expressions. These basic emotions include the following: happy, sad, mad, and scared. The task of recognition is often measured by the accurate identification of an emotion on the basis of facial expressions in pictures (Cutting & Dunn, 1999; Dunn, Brown, & Beardsall, 1991; Hughes & Dunn, 1998; Pons et al., 2004). For example, a child is shown a picture of a person with expressive sad cues to depict a person with a sad facial expression. Previous studies on the recognition

of emotion have used pictures of cartoon scenarios (Pons et al., 2004) and felt fabric faces (Cutting & Dunn, 1999; Hughes & Dunn, 1998) in eliciting facial expressions of each basic emotion. Other studies assessing recognition in emotion understanding have used pictures of actual people expressing the facial expressions (Bullock & Russell, 1985; Howlin, Baron-Cohen, & Hadwin, 1999). Measuring recognition of emotions through felt faces, cartoon scenarios, or pictures of actual people have all been shown to be an effective means of measuring recognition of emotions. However, photographs of actual people instead of drawings have been shown to be more difficult for children to identify (MacDonald, Kirkpatrick, & Sullivan, 1996).

External Cause

Another component of emotion understanding is the ability to understand the external causes of emotions. Children begin to develop this level of emotion understanding at approximately 3-4 years of age (Hughes & Dunn, 1998; Pons et al., 2004.) This is when children begin to understand how external circumstances affect others' emotions. In addition, children become aware that other people have feelings and those feelings vary according to the situation in which they find themselves (Fabes, Eisenberg, Nyman, & Michaelieu, 1991; Hughes & Dunn, 1998; Pons et al., 2004). When assessing children's understanding of the external causes of emotions, the child is told a story and asked to identify the appropriate emotion that would be felt by the person experiencing given situations. For example, if a sibling hides a child's toy, how will the child feel?

Desire

Between the ages of 3-5 years, children begin to develop the ability to understand that emotions can be based on desires. When acquiring the “desire” component of emotion understanding, children develop the ability to predict people’s emotional reactions based on their desires (Harris, Johnson, Hutton, Andrews, & Cooke, 1989). According to Yuill (1984), children as young as three years can judge satisfaction in characters in a neutral context, based on the motive and outcome of the action. For example, a child could predict the character’s happiness if they received what they desired. Furthermore, children can understand that people can feel different emotions about the same situation because they have different desires (Pons et al., 2004).

Hiding

A more complex aspect of emotion understanding is the comprehension of hidden emotions. This involves the ability to understand that a person can disguise their real emotions. There can be a discrepancy between the outward expression of an emotion and the emotion that is experienced. Children begin to understand this discrepancy between 4 and 6 years of age. Six-year-olds understand the difference between real and apparent emotion better than 4-year-olds. When children begin to understand hidden emotions, they can accurately describe the emotion being masked. For example, in a story one child is being teased by another child who has a lot of marbles. The child with no marbles begins to smile because he or she does not want to show how he or she is really feeling inside. This story depicts a character smiling on the outside to hide his or her inner feelings of sadness and has been used extensively in past research (Gardner, Harris, Ohmoto, & Hamazaki, 1988; Harris, Donnelly, Guz, & Pitt-Watson, 1986; Jones, Abbey,

& Cumberland, 1998; Joshi & MacLean, 1994; Pons et al., 2004; Saarni, 1979). The hiding task requires inhibition, which is the ability to use selective attention in a misleading situation (Bialystok, 1999).

Previous studies have supported this developmental trajectory of emotion understanding tasks across age. However, these studies were based on mainstream populations. It is important to investigate whether culturally and linguistically diverse children develop emotion understanding in a similar developmental trajectory. This study examined whether balanced bilinguals and language-dominant children develop emotion understanding similarly.

Emotion Understanding and Language

Receptive and expressive language abilities have been shown to influence the development of emotion understanding (Bosacki & Moore, 2004; Cutting & Dunn, 1999; de Rosnay, Pons, Harris, & Morrell, 2004). Pons and his colleagues (2003) have described two reasons why language influences emotion understanding. First, language might be a cognitive representation for emotions. Second, language might be an instrument of social communication. For example, children with better language skills will be able to communicate more easily with other people. Previous studies on emotion understanding and language have focused on language ability, such as syntax (Feldman, 1988) semantics (Moore, Pure, & Furrow, 1990; Olson, 1988) and pragmatics (Baron-Cohen, 1998; Eisenmajer & Prior, 1991). However, assessing language ability does not encompass all aspects and potential influences of language. Speaking another language or speaking more than one language could potentially influence performance on emotion

understanding tasks. It is important to investigate all aspects of language competence when investigating children's development of emotion understanding and expression.

Studies conducted on the development of emotion understanding in culturally and linguistically diverse populations have focused primarily on children's understanding of hidden emotions. Joshi and MacLean (1994) conducted a study on emotion understanding with Indian children. They chose Indian children due to the child rearing practices used by the Indian culture. Indian children are taught to respect their elders, and they must learn to hide their inappropriate emotions. It was predicted that preschool Indian-speaking children would show a greater understanding than preschool English-speaking children of the distinction between real and apparent emotions in child-adult stories. Results showed that younger Indian-speaking children performed better than younger English-speaking children on comprehending hidden emotions. However, as the children aged, the differences diminished.

Another cross-cultural study on emotion understanding was conducted on Japanese children. Gardner, Harris, Ohmoto, and Hamazaki (1988) investigated differences between Western and Japanese children in the hiding component of emotion understanding. Japanese children were selected for the study because it was hypothesized that Japanese children would display an earlier comprehension of hidden emotions compared to Western children as it is suggested that social interaction in Japanese children is highly regulated by the appropriate use of display rules. Results showed Japanese 4-year olds and 6 year-olds have a general awareness of the distinction between real and apparent emotion, however, the Japanese children did not comprehend the concept of hidden emotions any better than English-speaking children.

Downs and his colleagues (2007) investigated five components of emotion understanding on English and Spanish-speaking preschoolers: recognition of facial expressions in photos, recognition of facial expressions in drawings, situation-based emotions (external cause), desire-based emotions, and belief-based emotions. This study did not include comprehension of hidden emotions, but it did encompass more components of emotion understanding. Results showed that all children had significant growth in emotion understanding from Time 1 to Time 2, and English and Spanish speaking children showed similar patterns of age-based differences in the development of emotion understanding. In addition, Spanish-speaking children followed a similar trajectory in the development of emotion understanding as previous studies have shown with English-speaking children. However, differences were identified between English-speaking and Spanish-speaking children. English-speaking children generally outperformed Spanish-speaking children on all tasks tested of emotion understanding except belief-based emotions. The discrepancy in performance between English-speaking and Spanish-speaking children in emotion understanding tasks may be a result of the emotion understanding tasks not being culturally equitable. The emotion understanding tasks were designed to be used with English-speaking children from a European cultural background.

Bilingual Advantage

The limited studies on culturally and linguistically diverse children on emotion understanding have shown mixed results. These studies did not include bilingual speakers. Bilingual children might show differences in the development of emotion understanding compared to language-dominant children.

According to Bialystok (1999), there is a bilingual advantage compared to monolinguals in inhibitory control. Bilingual children are more advanced in solving problems that are based on conflict and attention compared to their monolingual counterparts. Bilingual children have been shown to have an inhibitory control advantage over monolinguals in the following inhibitory tasks: moving work task (Bialystok, 1997), appearance-reality tasks (Bialystok & Senman, 2004), and the dimension change card sort (Bialystok, 1999, Bialystok & Senman, 2004). One reason why bilingual speakers may have this bilingual advantage is due to their increased practice of selective attention and cognitive flexibility on a daily basis (Morton & Harper, 2007). Bilingual speakers must constantly inhibit one language to prevent ongoing intrusions of their second language (Green, 1998). Bilingual children also have higher levels of control and pay attention to abstract dimensions of language compared to monolingual children (Bialystok, 1997; Bialystok & Martin, 2004; Bialystok & Senman, 2004).

One component of emotion comprehension is understanding hidden emotions. The child must inhibit the apparent emotion for the real emotion. Gardner et al. (1988) and Joshi and MacLean (1994) both assessed understanding hidden emotions in culturally and linguistically diverse children. The studies showed mixed results. Joshi and MacLean (1994) showed that culturally and linguistically diverse children performed better than monolingual English-speaking children in understanding hidden emotions. Since bilingual speakers have an advantage in attention and inhibition compared to monolinguals, it is possible that bilingual speakers have an advantage in such advanced tasks of emotion comprehension as hidden emotion understanding, compared to

language-dominant children. However, only by including bilingual speakers in studies of emotion understanding, can researchers examine this possibility.

Social Competence and Language

Children's emotion understanding and social competence go hand in hand.

Children develop emotion understanding through interaction with others in sociocultural activities (Bruner, 1990; Dunn, 1988). A child's ability to understand how others feel and think is vital to social interactions and relationships with others (Dunn, 1995; Harris, 1989). Children who have poor emotion understanding often have increased interpersonal difficulties (Dodge, 1980), and they are at risk of being disliked by their peers (Denham, Mckinley, Couchound, & Holt, 1990). Previous studies have shown that preschool children's understanding of emotions is associated with greater social competence and peer acceptance (Denham et al., 1990). Moreover, children who have a better emotion understanding demonstrate higher levels of prosocial behavior with their peers and are more popular with their peers (Denham, 1986; Denham et al., 1990; Dunn & Cutting, 1999). According to Cutting and Dunn (2006), language ability is important for conversations and pretend play with friends. However, Cutting and Dunn only assessed receptive vocabulary in English-speaking children. Indeed, most previous studies on social competence have focused on monolingual English-speaking children from a European cultural background. Few studies have explored the differences in social competence among culturally and linguistically diverse populations. Balanced bilingual children might be more socially competent than language-dominant children, since they can communicate in two languages. Balanced bilingual children may have an

advantage over language-dominant speakers, since they can communicate to a wider range of people, and observe and experience a wider range of emotions.

Purpose

Previous studies have shown that children begin to develop emotion understanding during preschool years. The development of emotion understanding can be influenced by many factors, including language and social competence. The limited studies that have examined the development of emotion understanding among diverse groups of children have yielded mixed results. No studies to date have investigated differences in the development of emotion understanding among bilingual children. Bilingual children might have an advantage over language-dominant children in the development of emotion understanding because they can communicate to more people and have better inhibitory control. If so, the bilingual advantage can be extended to the development of emotion understanding. If balanced bilingual children have an advantage over language-dominant children in emotion understanding, are they also regarded as more socially competent than language-dominant children? The limited research on bilingual speakers on the development of emotion understanding and social competence leaves many questions unanswered. The present study explored the development of emotion understanding and social competence between balanced bilinguals and language-dominant children. The following research questions were addressed:

1. Is there a difference in the development of emotion understanding between balanced bilinguals and language-dominant children?

2. Do balanced bilinguals outperform language-dominant children on emotion understanding tasks? If so, do balanced bilinguals outperform language-dominant children on all emotion understanding levels, or is it only on some levels?
3. Do balanced bilinguals and language-dominant children develop emotion understanding in a similar trajectory?
4. Are balanced bilinguals more socially competent than language-dominant children?

CHAPTER III

METHOD

Participants

Participants in this study included 106 children (50 girls and 56 boys) ages 3 years and 6 months to 7 years and 5 months ($M = 5$ years and 8 months, $SD = 8.91$ months). The children had predominantly Hispanic parents (Hispanic: 74 Mothers, 62 Fathers; Anglo: 6 Mothers, 5 Fathers; Other: 1 Mother, 1 Father) who earned a mean total household income of approximately \$59,000.00 ($SD \approx 2,600.00$), which is above average for this region. The children were recruited from three elementary schools and two childcare centers in Hidalgo County, Texas. These children were recruited by sending an information and consent packet to the parents of children who were identified as bilingual by their teacher. Children were only included in the study if they had a minimum proficiency in English and Spanish vocabulary, which was determined by meeting the base level of each language survey.

Design and Procedure

A cross-sectional research design was used in order to examine social competence skills, language proficiency, and emotion understanding. The parents and teachers were administered the MacArthur Health and Behavior Questionnaire (MHBQ) to rate each child's social competence. The parents were also asked to complete a demographic survey. The children were administered the Woodcock-Muñoz Language Survey-

Revised: Picture Vocabulary subtest and four emotion understanding tasks from an adapted version of the Test of Emotion Comprehension (TEC) that will be discussed in detail later. The children were administered the emotion understanding tasks in English and Spanish on two different occasions. Four bilingual research assistants translated the emotion understanding tasks into Spanish and back-translated them into English to ensure proper translation. Language of task administration was counterbalanced across testing sessions, with the time span between the first and second test date a minimum of one week ($M = 2.23$ weeks, $SD = 1.84$ weeks). All children were tested individually in a quiet area of their school or childcare facility away from classroom distractions.

Measures

Emotion Understanding

An adapted version of emotion understanding developed by Pons et al. (2004) was used. The original version of this test assessed children's comprehension of happy, sad, mad, and scared across nine emotion comprehension levels. Scalogram analyses have shown this scale is reliable and valid (Pons et al., 2004). This present study added surprise, which is a belief-based emotion. Children were assessed on four emotion understanding tasks presented in random order: 1) Recognition of emotions, 2) Understanding the external causes of emotions, 3) Understanding that emotions are based on desires, and 4) Understanding hidden emotions.

In the recognition task (1), the child was asked to identify five (happy, sad, mad, scared, and surprised) emotional facial expressions in photographs of a gender-matched adult. In the external cause task (2), the child was told five stories for each emotion. The child responded by naming or pointing to the emotion they believed the character was

feeling in the story. In the desire task (3), the child was told a story about two characters' desires. The child was quizzed on the characters' desires with a "yes" or "no" response, and then, the child reported the emotional responses they believed the characters experienced. In the hiding task (4), the child was asked only one question about the character's real emotion. The child reported the real emotion the character felt, despite the apparent emotion the character revealed outwardly.

On the four tasks, a correct response was scored as a "1" and an incorrect response was scored as a "0". A valence emotion response was given partial credit and scored as a "0.5" because the valence emotion response given could be a plausible response, but was not the best response. For example, if a child believed the character in the story was sad when their sibling did not let them draw when the correct response was mad, sad was given a valence credit. The external cause and hiding tasks were the only levels with valence credit. A total emotion understanding score was computed by taking the sum of the children's passing score on each level.

For all tasks of emotion understanding, the children were allowed to point toward a photo depicting various facial expressions if necessary, in order to reduce the linguistic demands of the tasks (with the exception of the recognition task). Thus, all children who did not initially provide a verbal response to preliminary questions were asked if they could "point to the person with that feeling". For every missed control question, the story and question were repeated. The four levels of emotion understanding were tested using props. In order to control for practice effects, the characters' names in the stories were changed and different but equivalent props were used across the two (English and

Spanish) versions of the tasks. In addition, all props and photographs of facial expressions were gender-matched to the participants.

Social Competence

Each child's social competence skills were evaluated by their parent and teacher using a survey developed from the pro-social subscale of the MacArthur Health and Behavior Questionnaire (Essex, Thomas, & Goldstein, 2002). Items included 33 positive and negative behavior items which asked parents and teachers to rate behaviors on a 3-point likert scale: '0' (rarely applies), '1' (somewhat applies), and '2' (certainly applies). In order to determine the child's overall score, negative items were reverse-coded and then summed. Parents and teachers ratings were later aggregated.

Language

The child's proficiency in English and Spanish was measured using the Woodcock-Muñoz Language Survey-Revised: Picture Vocabulary subset (Woodcock, Muñoz-Sandoval, Ruef, & Alvarado, 2005). This subtest assessed the child's vocabulary in English and Spanish. The language survey took approximately 20 minutes to administer. Each question was scored as a 1 or 0. A child who failed to obtain a base level, which was determined by answering six items correctly in either English or Spanish vocabulary, was excluded from the study because they were not considered to be proficient in the language. A difference score was obtained by subtracting the Spanish language assessment score from the English language assessment score. The sample was then divided into three approximately equal groups of participants based on the overall difference scores: Spanish-dominant (31 to 85), balanced bilingual (-3 to 30), and English-dominant (-4 to -84). Then, the English-dominant and Spanish-dominant groups

were combined together to form the language-dominant group and allow comparison of balanced bilinguals and language-dominant children's performance on emotion understanding tasks and social competence skills.

Demographic Information

A demographic survey was administered to the parents of the children in the study. The parents reported on their educational background, yearly household income, language(s) spoken by the child, first language spoken by the child, and language understood and spoken better by the child.

CHAPTER IV

RESULTS

Preliminary Analyses**Emotion Understanding**

Mean passing scores, reported in Table 1, for the four emotion comprehension levels were summed to create a Total Emotion Comprehension (TEC) mean score.

Table 1

Mean Passing Scores and Standard Deviations for Composite (English and Spanish)

Emotion Understanding Levels and Total Emotion Comprehension (TEC), N= 106

Emotion Understanding	Means (<i>SD</i>)
Level 1: Recognition	9.03 (1.17)
Level 2: External cause	6.85 (1.67)
Level 3: Desire	3.16 (0.96)
Level 4: Hiding	1.55 (0.63)
TEC	20.59 (2.98)

Intercorrelations among the four emotion understanding tasks were computed to determine if all correlations were significant and a composite score was appropriate. All emotion understanding tasks were significantly related to one another, except the “Desire” task. These are shown in Table 2 and range from $r = .22$ to $.80$, $ps < .05$.

Table 2

Intercorrelations Among Composite (English and Spanish) Emotion Understanding Levels and Total Emotion Comprehension (TEC) Scores, N = 106

	Emotion Understanding				
	1	2	3	4	5
1. Recognition	1.00	.22*	.05	.33**	.59**
2. Ext. Cause		1.00	.33**	.29**	.81**
3. Desire			1.00	.36**	.60**
4. Hiding				1.00	.61**
5. TEC					1.00

** Correlation is significant at $p \leq .01$

* Correlation is significant at $p \leq .05$

Social Competence

A composite social competence score was computed by subtracting the positive social competence mean rating scores from the reverse-coded negative social competence mean rating scores of both parents and teachers. Mean rating scores and standard deviations on social competence are reported in Table 3.

Table 3

Mean Rating Scores and Standard Deviations for Parents' and Teachers' Positive and Negative Ratings on Children's Social Competence, Total Positive and Negative Ratings on Children's Social Competence, and Composite Social Competence, N= 106

Social Competence	Means (SD)
Teacher's Positive S.C.	24.87 (8.59)
Parent's Positive S.C.	26.46 (6.18)
Teacher's Negative S.C.	2.96 (3.73)
Parent's Negative S.C.	2.32 (2.62)
Positive Social Competence	25.69 (5.92)
Negative Social Competence	2.59 (2.59)
Composite Social Competence	23.10 (7.40)

Intercorrelations were computed among parents' and teachers' scores on children's social competence to determine if a composite score was appropriate and all correlations were significant. All correlations were significantly related to one another, except teacher's positive social competence ratings were not significantly related to parent's positive social competence ratings. These are shown in Table 4, and range from $r = .25$ to $.95$, $ps < .05$.

Table 4

Intercorrelations Among Parents' and Teachers' Positive and Negative Ratings on Children's Social Competence, Total Positive and Negative Ratings on Children's Social Competence, and Composite Social Competence Scores, N = 106

	Social Competence						
	1	2	3	4	5	6	7
1. Teacher's Positive S.C.	1	.25*	-.35**	-.29**	.86**	-.40**	.83**
2. Parent's Positive S.C.		1	-0.15	-.28**	.72**	-.26**	.67**
3. Teacher's Negative S.C.			1	.32**	-.33**	.88**	-.58**
4. Parent's Negative S.C.				1	-.37**	.74**	-.55**
5. Positive S.C.					1	-.43**	.95**
6. Negative S.C.						1	-.69**
7. Composite S.C.							1

** Correlation is significant at $p \leq .01$

* Correlation is significant at $p \leq .05$

Demographics

A MANOVA was used to compare children in the two language groups (balanced bilingual and language-dominant) on demographic variables, in order to determine if the groups differed in age, gender, mother's highest education level, father's highest education level, and total household income, which are shown in Table 5. There were no differences between balanced bilinguals and language-dominant children in demographic variables, ($F_{5, 80} = .45$, ns).

Table 5

Means and Standard Deviations for Children's Gender, Age, Mother's Highest Education Level, and Father's Highest Educational Level, and Total Household Income by Language Group: Language-Dominant (LD) and Balanced Bilingual (BB), N = 90-106

Demo.	Lang. Group	N	Means	SD
Gender	LD	71	0.54	0.50
	BB	35	0.54	0.51
	Total	106	0.54	0.50
Age (mo)	LD	71	69.6	8.90
	BB	35	69.89	9.84
	Total	106	69.7	9.16
Mother's Edu	LD	67	4.88	1.44
	BB	34	4.46	1.33
	Total	101	4.75	1.41
Father's Edu	LD	64	5.37	1.41
	BB	26	4.92	1.50
	Total	90	5.23	1.44
Income	LD	60	7.55	3.47
	BB	35	6.89	3.31
	Total	95	7.54	3.43

Language

Descriptive statistics were used to determine if all children met the base level for each language survey (See Table 6), and they were also used to analyze the frequencies of parent's reports on their child's spoken language(s) and language(s) understood and spoken better, which are shown in Table 7.

Table 6

Means, Ranges, and Standard Deviations of English Standardized Score, Spanish

Standardized Score, and Difference Standardized Score, N = 106

Standardized Score	Min	Max	Means	SD
English	21	129	80.26	23.4
Spanish	32	131	88.59	23.52
Difference	-84	85	8.33	40.15

Table 7

Percentages of Parent's reports on their child's spoken language(s) and languages(s)

understood and spoken better, N = 100-102

Language	Language Spoken Better	Language Understood Better	Language Spoken Better
English	9.8%	23%	26.7%
Spanish	38.2%	63%	63.4%
Bilingual	52%	14%	9.9%

Critical Analyses

Emotion Understanding and Language

A one-way repeated measures multivariate analysis of variance (MANOVA) was used to examine if there was a difference between the language groups (language-dominant and balanced bilingual) in the performance on overall emotion comprehension. Results showed a significant difference between language groups on overall emotion comprehension, $F(1, 106) = 5.57$. Follow-up univariate analyses, using the Bonferroni correction to control for family-wise error, revealed that there were significant differences between language groups in the "Desire" task, $F(1, 106) = 8.97$, $\eta^2_p = .08$, $p < .01$ and the "Hiding" task, $F(1, 106) = 5.91$, $\eta^2_p = .32$, $p < .05$. In particular, the

balanced bilinguals performed significantly higher than language-dominant children on the “Desire” and “Hiding” tasks on emotion understanding and on overall emotion comprehension (See Table 6).

Table 8

Mean Passing Scores and Standard Deviations for Composite (English and Spanish)

Emotion Comprehension Levels and Total Emotion Comprehension (TEC)

Language Groups: Language-Dominant (LD) and Balanced Bilingual (BB), N = 106

EMU	Lang. Group	Mean	SD	N
Recognition	LD	8.93	1.25	71
	BB	9.22	0.97	35
	Total	9.03	1.17	106
Ext. Cause	LD	6.77	1.54	71
	BB	7.01	1.92	35
	Total	6.85	1.67	106
Desire	LD	2.97*	1.07	71
	BB	3.54*	0.52	35
	Total	3.16	0.96	106
Hiding	LD	1.45*	0.66	71
	BB	1.76*	0.51	35
	Total	1.55	0.63	106
TEC	LD	20.12	2.93	71
	BB	21.54	2.90	35
	Total	20.59	2.98	106

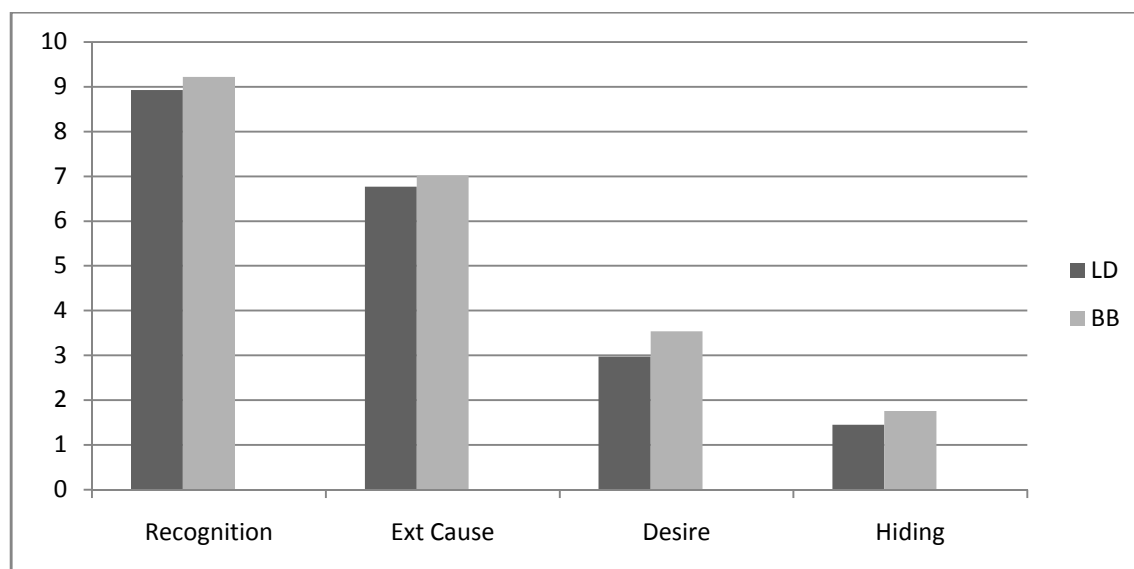
In order to determine whether balanced bilinguals and language-dominant children followed a similar trajectory in the development of emotion understanding, a repeated measures MANOVA was used to compare the groups’ mean passing scores.

Figure 1 shows that in general, both language groups followed a similar trajectory. Both language groups had higher mean passing scores for simpler emotion understanding tasks and lower mean passing scores for advanced emotion understanding tasks.

Figure 1

Mean Passing Scores for Composite (English and Spanish) Emotion Comprehension Levels

By Language Groups: Language-Dominant (LD) and Balanced Bilingual (BB), N = 106



Social Competence and Emotion Understanding

An analysis of variance (ANOVA) was used to investigate whether there was a difference in social competence ratings between language groups (balanced bilingual and language-dominant), and results showed no significant differences, ($F_{1, 105} = 2.53$, ns).

CHAPTER V

DISCUSSION

This study contributes to the limited literature on the development of young children's socioemotional competence among linguistically and culturally diverse populations. It specifically addresses whether balanced bilingual children have an advantage over language-dominant children in emotion understanding and social competence. It also extends research on the bilingual advantage to other cognitive domains.

Emotion Understanding and Language

Previous studies on emotion understanding have focused on monolinguals (Cutting & Dunn, 1999; Hughes & Dunn, 1998; Pons et al., 2004) and few studies have measured the development of emotion understanding in culturally and linguistically diverse children. This study supports previous findings that have suggested the importance of language ability in the development of emotion understanding (e.g., Cutting & Dunn, 1999; Pons et al., 2003) through sampling linguistically diverse children rather than limiting participants to only English-speaking children from European cultural backgrounds.

Results showed there are differences in the development of emotion understanding between balanced bilinguals and language-dominant children. Overall,

balanced bilinguals outperformed language-dominant speakers on total emotion comprehension. Specifically, balanced bilinguals outperformed language-dominant children on two advanced emotion understanding tasks, in which they evidenced an increased understanding that emotions can be based on desires and that emotions can be hidden. However, these findings are tentative because when the language groups were formed at different cut-off points, no differences were found.

Findings from this study further support the limited emotion understanding research conducted on culturally and linguistically diverse children. In particular, the study conducted by Joshi and MacLean (1994) in emotion understanding among Indian-speaking children revealed that some age groups of these culturally and linguistically diverse children outperformed English-speaking monolingual children in the comprehension of hidden emotions. Culturally and linguistically diverse children may have a better comprehension of hidden emotions due to the child rearing practices of their culture. For example, these children might be taught to respect their elders by learning to hide their inappropriate emotions (Joshi & Maclean).

It is also possible that balanced bilinguals have an advantage in detecting hidden emotions because they have a better inhibitory control than language-dominant children (Bialystok & Martin, 2004). Balanced bilinguals' better inhibitory control might also assist their performance on the "desire" task. Children's ability to predict people's emotional reactions based on their desires may require selective attention to the character's desires and inhibition of others' desires. Previous studies have suggested bilingual speakers have an advantage on selective attention and cognitive flexibility tasks compared to monolingual children (Bialystok, 1999; Bialystock & Martin, 2004;

Bialystok & Senman, 2004), and this study further supports the findings that there is a bilingual advantage that extends to other cognitive domains.

Studies have shown it is possible that differences between bilingual and monolingual children's attention control derive from differences in SES (Mezzacappa, 2004), and higher SES has been associated with increased emotion understanding (Cutting & Dunn, 1999; Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991). Furthermore, studies have shown both age (Pons et al., 2004) and gender (Bosacki & Moore, 2004) to be associated with emotion understanding. Thus, it is important to ensure that the bilingual advantage in the performance of emotion understanding is not due to SES, age, and/or gender differences. Results showed that there were no differences between language groups in SES, age, and/or gender, a strength of this study. If there were differences in SES, age, and/or gender between language groups, it would be difficult to determine if the differences between the groups were based on demographic variables or language group.

Another strong point in this study was that both language groups developed emotion understanding in a similar trajectory, as previously identified by Pons et al. (2004). Children were first able to recognize facial expressions, then to identify the external causes of emotions, then to understand emotions can be based on desires, and lastly to comprehend that people can hide emotions.

Social Competence and Language

Previous studies have linked language ability to successful performance on emotion understanding tasks and better social competence (e.g., Cutting & Dunn, 1999). Balanced bilinguals did outperform language-dominant speakers on advanced emotion

understanding tasks, but they were not regarded as more socially competent than language-dominant speakers. Studies have shown that young children who perform better on emotion understanding measures also demonstrate higher levels of social competence (Denham, 1986; Denham et al., 1990; Dunn & Cutting, 1999), but this study did not support past literature. The reason why balanced bilinguals were not regarded as more socially competent than language-dominant children might be because the difference between language groups on emotion understanding was not large enough to influence social competence ratings. Results could also suggest that these are unique domains of development, too.

Limitations

This study did not measure children's inhibitory control, complicating interpretation of findings regarding the bilingual advantage on some emotion understanding tasks. In particular, it is difficult to determine whether differences between balanced bilinguals and language-dominant children on emotion understanding are due to differences in inhibitory processing, or other factor relations to social-emotional competence.

In measuring emotion understanding, only the five basic emotions (happy, sad, mad, scared, and surprised) were used. These basic emotions have distinctive facial expressions and can be easily detected. However, more complex emotions such as pride and guilt for older children, which do not have distinctive facial expressions (Harris, Olthof, Terwogt, & Hardman, 1987), cannot be measured by the methodology that was used in this study. If a longitudinal study was conducted, comprehension of complex emotions could be measured.

The present study did not examine the development of emotion understanding longitudinally, or in older samples of children. The bilingual advantage in children's emotion understanding could be limited to early childhood. When children begin entering school, they have more peer interaction, and studies have shown peer interaction to be associated with better emotion understanding (e.g., Bruner, 1990; Dunn, 1988). Future research should examine emotion understanding among older samples of children or longitudinally to investigate whether the bilingual advantage in emotion understanding continues.

As an ethnic minority sample was used, the facial expression photos might have not been culturally appropriate. The photos eliciting facial expressions used in this study were of a male and female Caucasian. Using facial expressions in photographs that are ethnically matched to the children could reveal that children are better able to recognize emotions.

Summary, Future Directions, and Implications for Policy

The present study supported previous literature on the importance of language in emotion understanding. This study showed balanced bilinguals compared to language-dominant children have an increased understanding that emotions can be based on desires and that emotions can be hidden. However, there were no differences shown in social competence ratings between balanced bilingual and language-dominant children.

This study also extends findings regarding a bilingual advantage on cognitive tasks (i.e., inhibitory control) to include emotion understanding tasks. However, in order to determine the limits to the bilingual advantage, a longitudinal study should be conducted to investigate an older bilingual sample's development in emotion

understanding. These future studies should also investigate bilingual speakers' inhibitory control. If inhibitory control plays a large role in the bilingual advantage in emotion understanding, an inhibitory control task can measure differences in selective attention and cognitive flexibility between balanced bilinguals and language-dominant children.

Results from the present study could be used to inform educational policy-makers about balanced bilingual children's advantage on emotion comprehension for dual-language programs. Since emotion understanding has been shown to be related to later academic outcomes and to positive perceptions in school (Dunn, 1995; Izard, Fine, Schultz, Mostow, Ackerman, & Youngstrom, 2001), it is important that children be proficient in emotion understanding.

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BIOGRAPHICAL SKETCH

Katrina Meza received her Bachelor of Science on December 2007, at the University of Texas-Pan American. She double majored in Psychology and Sociology. On December 2009, she received her Master of Arts in Clinical Psychology. A thesis was not required for the Master of Arts degree, however, Katrina returned as a non-degree seeking student to the University of Texas-Pan American to complete her thesis.

Katrina has gained research experience through paid and volunteered positions. During the summer of 2006, Katrina was chosen as one of twelve minority students in the nation to conduct research in the University of Utah in the Summer Research Opportunity Program (SROP). During the spring of 2008, 2009, and 2010, she was employed as a research assistant at the University of Texas-Pan American. Katrina has presented her research at conferences in the Southwestern Psychological Association (2007), Cognitive Development Society (2010), and the University of Texas-Pan American College of Social and Behavioral Sciences Conference (2008, 2009, 2010).

Katrina has experience treating sexually and physically abused children. She also serves as a visitation observer for the Department of Family and Protective Services (DFPS). Her duties include observing and supervising court-ordered visitations between parents and children.

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