



## A developmental sequence of skills in adolescents' intergroup understanding

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### Abstract

This study explores the psychometric properties of a proposed sequence of socioemotional cognitive skills in the domain of intergroup understanding as assessed by interview and questionnaire data from 91 Caucasian and Hispanic adolescents. The proposed sequence of skills was measured under two support conditions to test hypotheses about a developmental range of cognitive skills. Regression analyses revealed that ethnic identity exploration predicted optimal cognitive skills (high environmental support) and ethnic belonging predicted functional cognitive skills (low environmental support). Results confirm the reliability of the sequence, reveal the importance of support effects, and suggest that high and low environmental support evoke different dimensions of adolescent intergroup understanding.

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### 1. Introduction

Cross-cultural misunderstanding is a persistent and ubiquitous problem in the United States and it first manifests during childhood and adolescence. To be effective in facilitating harmonious cross-cultural relationships, educators, parents, and communities need to understand how children and adolescents think about ethnic groups. The success of adults' efforts to help youths circumvent cross-cultural misunderstanding may rest on adults' ability to recognize and to promote mature intergroup understanding among youths.

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A central component of intergroup understanding is the cognitive complexity of individuals' interpretations of the meaning of ethnic group membership. From a developmental perspective, complexity can be assessed by the degree of conceptual and affective differentiation and hierarchical integration of individual's verbal responses to questions about culture (Karcher, 1996). Extensive research has shown that complexity defined in this way is the most pervasive and important dimension underlying cognitive and affective development (Case, 1991; Dawson, 2002; Fischer, 1980; Fischer & Bidell, 1998). Applying this developmental perspective to adolescent intergroup understanding is important for at least two reasons. First, prejudice has been found to predict less differentiated evaluations of other groups (Doyle & Aboud, 1995; Linville, Salovey, & Fischer, 1986; Miller & Brewer, 1986). Second, the differentiation of more complex racial and ethnic representations facilitates the development of more mature social understanding (Katz, 1976; McGuire, McGuire, Child, & Fujioka, 1978).

There are other sociocultural and socioemotional factors that also may contribute to the complexity of youths' intergroup understanding, such as prior exposure to other groups, support in the environment (or in the assessment condition) for higher levels of cognitive and affective skills integration, feelings of ethnic identification and belonging, or prior reflection on one's own ethnic identity. Understanding the effects of these socioemotional factors on youths' demonstrations of intergroup understanding may reveal ways for adults to prevent intergroup hostilities and facilitate intergroup understanding among youth in schools and communities (Laosa, 1989).

### *1.1. Children's understanding of race and ethnicity*

Several researchers have described the role of social cognition in children's understanding of race and ethnicity. Their research highlights the role that cognitive development plays in cross-cultural interactions as well as the developmental trajectory that informs adolescent intergroup understanding (Bigler & Liben, 1993; Doyle & Aboud, 1995; Hirschfeld, 1996; Katz, 1987; Knight, Bernal, Garza, & Cota, 1993; Naimark, 1982). Initially, children note physical cues, like skin color and other concrete characteristics of race (Katz, 1976). By age six or seven, cues associated with racial groups begin to be differentiated and integrated into a more complex understanding of racial groups, based on concrete examples of the distinctive social and psychological characteristics of different groups. This highlights the centrality of both differentiation and the integration of ethnic descriptions in the development of intergroup understanding, and illustrates developmental changes similar to growth from preoperational to concrete and formal operational thought (Piaget, 1994).

Research describing the processes involved in intergroup understanding among adolescents is more limited. A few theorists have built models of transformations in attitudes and understanding as adolescents mature from concrete or representational thought toward more abstract thought. According to the model of ethnic perspective taking (EPT, Quintana, 1994), which is based on Selman's (1980) analysis of interpersonal understanding, preadolescents focus on concrete features associated with ethnic groups, such as socioeconomic status (SES) or the neighborhoods where they live (EPT Level 2a), and social phenomena associated with ethnicity, such as discrimination or prejudice (EPT Level 2b). Older adolescents typically take a more complex, abstract perspective and better understand the multiple, pervasive experiences shared by ethnic groups, such as racism or privilege (EPT Level 3a) and that these experiences inform the psychological beliefs, attitudes, or worldviews of different ethnic groups (EPT Level 3b).

Many models of intergroup understanding are useful but share similar limitations. First, most models that are applicable across cultural groups do not explicitly address variation that results from between-group differences in exposure to other groups. Luria's (1979) work suggests that cultural experience shapes how individuals understand cultural properties. Luria's point, that people understand most complexly those things to which they have had the greatest exposure, has been central in research on category differentiation (Linville et al., 1986; McGuire et al., 1978) and cultural psychology (Cole, 1996). Extending this principle, the complexity of adolescents' intergroup understanding should reflect the degree of cultural differentiation and integration that youths' prior experiences afford them. Therefore, adolescents reporting less exposure to other groups should demonstrate less complex intergroup understanding.

A second limitation shared by other models is that they do not account for the effects of immediate contextual support in the environment or assessment condition. None account for variations in the interpersonal support that the interviewer provides the interviewee for responding more complexly, despite evidence that support powerfully affects cognitive complexity in multiple domains (Fischer & Lamborn, 1988; Sigel, 2002) and that it does so to a larger extent as age increases (Fischer & Kenny, 1986). When provided high support, a person or another aspect of the context primes the key components of a person's response, and the person then coordinates and uses those components to convey their fullest understanding. In low support, there is no priming of key components, which tends to result in less complex demonstrations of cognitive complexity. Yet, most intergroup understanding models do not account for these support effects. For example, typically, it is unclear whether the scored level of EPT reflects an everyday, unsupported response or the adolescent's most complex thinking.

A third limitation of the previous models is that many are guided by the content of responses rather than by the underlying developmental structure of responses. Interviewees may state abstract words (such as discrimination) that appear to reflect complex intergroup understanding but that in fact reflect a large vocabulary that masks a structurally less mature understanding. For example, when explaining concepts and experiences reflecting cultural group membership, a youth may say "Discrimination limits people's opportunities," which could be scored as abstract (and EPT Level 3a) because it discusses discrimination; yet, through a highly supportive interview, the youth may further state "What I'm talking about is when they don't let me play basketball with them. That's what discrimination is. That's all." This elaboration reveals that the words discrimination and opportunities are not understood abstractly, but instead, concretely. For these words to be used abstractly, the adolescent should be able to do two things. First, he or she needs to define the word discrimination in a way that can be applied across contexts and people (e.g., "an action made by someone holding power and made against someone or some group on the basis of prejudice"). Second, an adolescent should be able to provide and interrelate several examples of that definition that apply to different types of individuals or cultural groups. Without using such guidelines to explore the developmental complexity of cultural words and concepts, an interviewer may code an individual's responses erroneously and with compromised reliability.

Finally, the sizeable differences in SES across cultural groups in the United States (Miller, 1995) and the correlated differences in English verbal skills (Wechsler, 1981) require that models of intergroup understanding account for variation in SES and vocabulary. Adolescents with greater vocabularies should not be assigned more complex intergroup understanding when the structure of their thought actually reflects concrete, undifferentiated concepts.

## 1.2. *A proposed sequence of cognitive skills in adolescents' intergroup understanding*

To construct a developmental model of adolescent intergroup understanding that includes consideration of support, experience, and hierarchical complexity, we used dynamic skill theory, which provides concepts and methods for assessing hierarchical levels of socioemotional cognition that may aid in assessing adolescent intergroup understanding more accurately. Dynamic skills theory (Fischer, 1980) specifies ways to explain the sources of variation in the complexity of skills that an individual uses in a task, such as understanding cultural differences. Support is one key source of variation. *Functional* level responses occur under low support. *Optimal* level responses occur under highly supportive conditions and reveal the highest level of skills that a person can attain in a domain. These two levels of support elicit the two ends of the developmental range that Vygotsky (1978) called the zone of proximal development.

### 1.2.1. *A proposed developmental hierarchy of cognitive skills in intergroup understanding*

Using this theory, we propose a developmental sequence of intergroup understanding in which later developed skills integrate and build upon previously developed ones. We propose that between childhood and adolescence, socioemotional cognitive skills in intergroup understanding develop through four tiers, each of which represents a structurally different way of controlling (through thoughts and feelings) sources of variation in the task of intergroup understanding: reflexes, sensorimotor actions, representations, and abstractions.

For the purpose of the present study, in which we interviewed adolescents, we focused primarily on the use of abstract thought in intergroup understanding. Adolescents rely most heavily on their representational skills and burgeoning abstract skills (Fischer, 1980) and are most likely to draw upon these to describe culture (Karcher, 1996; Kennedy, 1993). Abstractions reflect the ability to control intangible concepts that can be generalized across contexts, and abstractions are built upon the integration of earlier representational skills. Between early and late adolescence, representations of ethnic groups (e.g., they are mean, nice, smart), their experiences (e.g., poor, live in nice houses), and affective valences (e.g., “I like them.”) become differentiated and integrated into structurally more complex representational systems (“They are nice, but poor, and don’t have good jobs”), and finally into single abstractions (e.g., discriminated against, outgoing, competent, or prejudiced). These abstract concepts can then become differentiated and integrated (intercoordinated) with each other, such as when an adolescent describes how discrimination and poverty are related to each other either as a function of causality, similarity, or opposition.

Besides these general levels of skill development, dynamic skills theory (Fischer, 1980) includes a set of transformation rules to explain the steps by which a skill within one level progresses toward the next level, such as how the skill of using one abstraction transforms into a skill relating two abstractions. We propose that four microdevelopmental steps, hypothesized by Fischer (1980) and validated as sequentially ordered developments in several domains (see Fischer, Bullock, Rotenberg, & Raya, 1993), occur in the development of intergroup understanding: shift of focus (or focusing), substitution, compounding, and intercoordination. The first two, focusing and substituting, involve adding an additional thought or affective valence or applying a skill to a different example, such as “Prejudice is disliking someone because of their race, and that’s a bad thing” or “. . .and I see that a lot around here.” Compounding is the step in which one skill fully coordinates two separate skills in a more complex way but at the same skill level. We propose that compounding requires substitution or

focusing before it can occur. An example of compounding would be an adolescent's ability to recognize two aspects of the same cultural phenomenon but inability to understand their relation. For example, a youth might say, "Mexican American people get discriminated against, and Blacks get discriminated against too." But when asked how these forms of discrimination might be related, he or she has no idea. Intercoordination occurs when two fully differentiated skills at the same level become integrated into a more complex skill that can be held together or integrated under one word, concept, idea, or thought at the next developmental level. Such an achievement would occur if the youth realized the relation of similarity of African Americans' and Mexican Americans' SES and described poverty as one condition contributing to discrimination. Here, two compounded examples of discrimination become coordinated as a function of similarity and viewed together as examples of discrimination that are mapped to another abstract concept through their causal relationship. A scale for scoring this sequence of cognitive skills in intergroup understanding is presented in Table 1. More detailed examples of tiers, levels, and transformation rules are presented elsewhere (Fischer, 1980; Karcher, 1997).

### 1.2.2. Structuring a developmental interview to capture support effects

For this study, an intergroup understanding interview protocol was developed for assessing the skills used in intergroup understanding. Using this protocol, interviewers ask adolescents to describe the meaning of membership in two different ethnic groups and then further explore adolescents' answers by asking the youth to explain the relationships among their different responses. The interview protocol, varies the degree of support provided into two interview conditions, low support and high support. First, in the low-support condition, the interviewer uses open-ended questions to elicit spontaneous, unstructured responses and thus assesses functional level. In this low-support condition, the youth are encouraged to say as much as they need to in order to explain *what it means* or *what it is like* to be a member of the two ethnic groups. Then, in the high-support condition, the interviewer primes the elements of the youths' low-support responses using prompts that encourage youth to explain any relationships they perceive between their separate responses, thus eliciting optimal level skills.

Three prompts are provided in the high-support condition. The first and second prompts test whether each word or concept is used concretely (representationally) or abstractly by asking (a) for a definition of the concept provided by the youth and (b) for additional examples based on that definition. The third prompt, "Can you see a way in which any of these ideas or words (written on paper) are similar, opposing, or cause each other?" is used to reveal individual's ability to intercoordinate his or her

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#### Notes to Table 1:

Levels reflect specific developmental levels in cognitive skills, and steps indicate the sublevel transformations by which a skill at one level develops into skills at the next level. Each step of skill structure has a number that is used in the coding of the skills. These numbers were used in subsequent analyses. Two types of steps are presented, a and b, which refer to degrees to which individual skills, like an abstract thought, becomes more complex through its relationship with another skill. The "complex (skill) a" is the first step in the transformation of from one developmental skill to another, and "complex (skill) b" is the second step in this transformation.

A = abstraction; Rp = representation; 1 = single skill (e.g., a representational or abstract thought unit); 2 = two skills mapped in relationship to each other; 3 = three or more skills interrelated into one thought unit system; a = transformational step of substituting one skill for another or shifting focus from one skill to another at the same developmental level; b = transformation step of compounding but not yet fully intercoordinating multiple skills at the same developmental level.

Table 1  
 Predicted sequence of cognitive skills in intergroup understanding

Level	Step/skill structure	Criteria for a response pass
Rp2	(1) Representational mappings	Person relates two physical, behavioral, or concrete representations (Rp1) either causally (such as “They live in small houses because they are poor”), conditionally, or categorically (“We look different than them: they have light skin and have light eyes”).
	(2) Complex Rp2a	Substitution or shift of focus between three or more Rp1s (e.g., coordinating both examples in Step 1, above), or extra Rp1s are used to describe mood or quality of an Rp2 (e.g., “. . .which makes them feel sad sometimes”).
	(3) Complex Rp2b	Compounding of Rp1s (e.g., “We look different, ‘cause we are darker and they have light skin and light eyes, and because we talk differently”).
Rp3	(4) Representational systems	The individual is able to coordinate and integrate several physical, behavioral, or concrete characteristics of race/ethnicity (either causally, conditionally, or categorically) into a group description or experience (e.g., “Because some people don’t like them, they don’t spend much time with people in other groups, and they do a lot of things with people in their own group”).
	(5) Complex Rp3a	Substitution or shift of focus between two or more Rp3s.
	(6) Complex Rp3b	Compounding of two or more Rp3s with no clear relationship.
Rp4=A1	(7) Single abstraction	The individual is able to coordinate and integrate at least two physical, behavioral, or concrete descriptions (Rp1s) into a single characteristic of race or ethnicity that can be defined as generalizing beyond any one context, group or example. For example, “They are bilingual [prompted by interviewer]. It means someone can talk two languages [prompted for examples]. Like, you talk different with some people than with those where you live, or if you like go somewhere else, then you learn to speak that language too. You can use both.”
	(8) Complex A1a	Substitution or shift of focus between two or more abstractions (A1s), or an additional Rp3 or A1 is used to suggest mood or quality (e.g., “. . .so they usually feel anxious”).
	(9) Complex A1b	Compounding of two or more A1s with no clear relationship.
A2	(10) Abstract mappings	The individual is able to relate two abstract racial or ethnic characteristics or descriptions to each other. This link can either be a causal link (A causes B or is a necessary condition for B) or a relation of similarity or opposition [traits A and B are alike because both are instances of X (e.g., “being in the minority”) or A and B are opposite examples of the same concept].
	(11) Complex A2a	Substitution or shift of focus between two or more A1s, or additional mappings (A2) to describe the mood (“. . .which is stressful”) or quality of one abstraction (“. . .which is admirable”).
	(12) Complex A2b	The individual can relate, map, or compound three or more abstractions or compounds beyond one abstract mapping (e.g., “It is stressful when you feel intimidated because someone is prejudiced against your group and arrogant about their own group”).
A3	(13) Abstract systems	The individual is able to coordinate groups of abstract racial/ethnic descriptors and integrate them into complex relations with each other. For example, if the individual is able to explain how appearance, discrimination, self-image, and racism all relate to describe the way someone feels about an event.
	(14) Complex A3a	Substitution or shift of focus on A1s beyond an A3 system, or additional A1s are used to describe mood or affective quality.
	(15) Complex A3b	The individual can relate or map one or more abstract mappings beyond A3 or compounds two A2s beyond one mapping A3.
A4 = P1	(16) Single principle	The individual is able to relate two or more abstract systems together to form a single principle. For example, the individual relates abstract definitions of discrimination based on classism, sexism, and prejudice into a definition of “power” or “dominance” that explains them all.

responses. The prompt simply primes the youth to organize his or her responses at a higher level of complexity, and it tests the youth's ability to demonstrate each skill in the proposed sequence (see Table 1). For example, if the interviewer asks "What is it like to be Hispanic?" and the youth says "We're discriminated against," the interviewer asks for a definition of discrimination and provides the prompt, "What would be other examples of being discriminated against?" to determine whether the word discrimination is being used abstractly or concretely. Encouraged to clarify what he or she has said through providing additional examples, either the youth will indicate there is only the one representational description the youth has already provided (indicating that the word is not used abstractly), or will give an abstract definition of discrimination and several representational examples consistent with that abstract definition (indicating that the word is used abstractly).

This procedure assesses a developmental range of skills from spontaneous, everyday, or functional level to the highest or optimal level the youth can produce. We hypothesized that between-group differences in optimal skills would reflect each ethnic group's amount of exposure to the other ethnic groups. We also expected that the developmental range between functional (low support) and optimal (high support) skills would reflect the different underlying socioemotional properties that relate to ethnic belonging and identity exploration.

### *1.2.3. Exposure to other groups*

The sequence of skills in intergroup understanding proposed in this study reflects the degree to which youth can integrate ethnicity-related concepts, experiences, and descriptors into higher order thinking, but to be able to do this, youth must have had sufficient exposure to such concepts, experiences, and descriptions to recall and cognitively organize these thoughts. Groups with more exposure to ethnic-specific interactions, contexts, and experiences should have more representations with which to create and intercoordinate complex thoughts (Cole, 1996; Luria, 1979). It has been argued that even in contexts with a balance of ethnic minority and majority group members, it is much easier for majority than minority individuals to retreat into homogeneous enclaves and minimize their interaction with other ethnic groups (Alba, 1990; Foley, 1990), thereby increasing the probability that minority group youth will have had more exposure to other ethnic groups than will the majority youth. It is also likely that minority youth will have had more positive contact with majority group members, such as with teachers, than will majority group youth, whose exposure to other groups may be more likely to be based on stereotypes reflected in the media than on interactions in school or other contexts (Stephan, 1999). Therefore, ethnic minority group members should demonstrate more complex skills in intergroup understanding and also may be less likely to demonstrate an in-group or own-group bias than majority group youth (Pettigrew & Tropp, 2000).

### *1.2.4. Ethnic identity: Exploration and belonging*

Given the different meaning that ethnicity holds for majority and minority ethnic group members and the unique social experiences that their ethnic group membership affords members of different groups (Laosa, 1999), ethnic identity tends to be stronger among and more important to ethnic minority group members (Aboud & Doyle, 1993). For ethnic minority group members, ethnicity is a source of belonging, support, and familiarity, while for many majority group members, their ethnic identity often develops either out of a historical tie to a non-U.S. nationality or as a result of interpersonal experiences that promote belonging as a form of separateness or distinction from minority groups (Alba, 1990). In South Texas, where there is a long history of Hispanic and Anglo (i.e., Caucasian) interaction in

communities and schools, ethnic identification among students from these groups often develops in contradistinction to one another and early in the educational process (Foley, 1990).

For both groups, however, ethnic belonging tends to reflect the everyday, typically nonreflective practices of ethnic group membership, while ethnic identity exploration reflects a more abstract reflection on the meaning of ethnicity in one's life (Roberts et al., 1999). Therefore, we expected functional level skills to be predicted best by a measure of ethnic belonging because both functional skills and belonging reflect more of the affective and cognitive quality of everyday socialization practices. In contrast, we expected optimal level skills to be predicted from measures of youths' prior experience in thinking about cultural group membership, such as through ethnic identity exploration. Testing these relationships would help to identify ways in which school structure and curricula might be adapted to influence more complex intergroup understanding.

### *1.3. Plan of analysis: Toward the assessment of cognitive skills in intergroup understanding*

In the present study, four hypotheses were tested. First, we used the techniques of dynamic skill theory to test the reliability and scalability of the proposed sequence of skills in intergroup understanding. Second, we tested the cultural psychology hypothesis (Cole, 1996; Luria, 1979) that members of groups with the greatest exposure to other ethnic groups should report the greatest complexity in the domain of intergroup understanding. Third, we assessed intergroup understanding under two support conditions to identify the developmental range that reveals the upper and lower bound assessments of youths' intergroup understanding across three points in adolescence: early, middle, and late adolescence. Finally, we tested hypothesized relationships between optimal and functional responses and two separate aspects of interviewees' ethnic identity: ethnic identity exploration and ethnic belonging.

#### *1.3.1. Hypothesis 1: The proposed sequence of cognitive skills in intergroup understanding is scalable, can be reliably coded, and provides a valid estimate of intergroup understanding*

Using Guttman's (1944; Green, 1958) scalogram technique, we assessed the scalability of the proposed hierarchical sequence. To assess the reliability of the proposed sequence of cognitive skills, we also assessed interrater agreement. Concurrent and convergent validity were examined by correlating the cognitive skills measures with EPT scores, age, and verbal ability. T Tests were used to test within-group differences in skills demonstrated under high and low support. Finally, using multiple analyses of covariance (MANCOVAs), developmental change was assessed by comparing functional and optimal levels of cognitive skills across three age groups: middle school, early high school, and late high school aged youth.

#### *1.3.2. Hypothesis 2: The group with more prior exposure to other groups will demonstrate greater skills in intergroup understanding*

Controlling for between-group differences in SES, age, and verbal ability, we hypothesized that the group with more exposure to other groups would be able to draw on these experiences to demonstrate greater intergroup understanding than the group with less exposure to other groups. We expected that the Mexican American participants would report greater exposure to other groups. Three steps were taken to assess the presence and impact of differences in exposure to other groups on intergroup understanding. First, to test for anticipated group differences, a between-groups analysis of variance compared levels of exposure to other groups between the Anglo and Mexican American youth. Second, a between-ethnic

groups MANCOVA was conducted to compare mean levels of cognitive skills for the two ethnic groups controlling for between-group differences in SES and verbal ability. Finally, exposure to other groups was added to this MANCOVA to test the unique effect of exposure on between-group differences in intergroup understanding.

### *1.3.3. Hypothesis 3: Varying support conditions elicits different levels of intergroup understanding skills*

Support conditions were expected to elicit a developmental range in skills, with high-support conditions eliciting (optimal level) skills that are significantly more complex than the (functional level) skills revealed in low-support conditions. Paired sample *t* tests were used to examine hypothesized within-group support effects and to test for the presence of in-group bias in the complexity of skills used to describe one's own group versus to describe another ethnic group.

### *1.3.4. Hypothesis 4: Optimal skills reflect prior reflection on ethnic group membership (ethnic identity exploration); functional skills reflect feelings of ethnic belonging (ethnic socialization)*

Using hierarchical regression, two ethnic identity scales were used to predict the optimal and functional cognitive skills that youth demonstrated when describing members of the other ethnic group. Previous cognitive reflection on ethnic group membership (viz., past experience with the task of differentiating and integrating cultural concepts), as measured by ethnic identity exploration, was hypothesized to predict optimal level skills. Feelings of ethnic belonging were expected to predict youths' everyday response to questions about race and ethnicity, which was measured by functional level interpersonal understanding skill assessments. Measures of verbosity, verbal ability, and ethnicity were included in these models to rule out rival explanations.

## **2. Method**

### *2.1. Participants*

The study was conducted with 110 adolescents in Grades 6–12 from a public middle and high school in a large metropolitan city in Texas. Ethnic representation in these schools was 60% Anglo, 30% Mexican American, and 10% African American, Asian, or other. These schools were chosen because of the expected variation in multicultural experience afforded the students. In this school district, students were desegregated in the sixth grade from ethnically homogenous elementary schools. At the time of the study, there was an antagonistic intergroup climate at these two schools; it was not difficult to recruit students willing to share their thoughts about cultural groups. Participants were recruited in their homerooms and compensated with pizza and two movie passes. All students provided written parental consent and youth assent. One hundred and ten youths completed the questionnaires and participated in a 1-hour interview. Most interviews were conducted by a graduate researcher of the youths' same ethnic background. Before data were analyzed, 19 were eliminated from the sample because the low quality of English precluded adequate interview data or the student was neither Hispanic nor Caucasian.

Ninety-one adolescents were included in the final sample: 44 were Hispanic and 47 were Caucasian. Ninety-six percent of the Hispanic group self-identified as either Mexican American, Hispanic, or Mexican. Four were of mixed ethnic heritage (Hispanic and Anglo) but identified themselves as Mexican American. One self-classified as Nicaraguan, another as Mexican Indian. Eighty-nine percent

of the Caucasian group self-identified as Anglo, white, Caucasian, or some European ancestry. The others claimed Texan, American, or some other English-language group as their ethnicity. The labels Anglo and Mexican American are used in the rest of the paper because these were the most common self-referent descriptions provided by participants.

The Mexican American and Anglo youths in the study differed significantly in English vocabulary skills, SES, prior exposure to other groups, and generation status, but not in age. Using the Wechsler vocabulary subscale as a measure of English verbal skills, the Anglos ( $M = 40.92$ ;  $SD = 13.84$ ) scored significantly higher than the Mexican American youths [ $M = 27.25$ ;  $SD = 15.08$ ;  $F(1,89) = 20.38$ ,  $p < .001$ ]. With a scale of SES, based on parents' level of education adjusted for present occupation, ranging from 1 (*unemployed/did not attend high school*) to 10 (*professional job/postgraduate degree*), the Mexican American participants' family SES was significantly lower ( $M = 3.55$ ;  $SD = 2.5$ ) than the Anglos' [ $M = 8.01$ ;  $SD = 1.47$ ;  $F(1,85) = 99.52$ ,  $p < .001$ ]. Although this measure is primarily a measure of parental education, we will refer to it as SES in the manuscript. Generational status of the youth was assessed in terms of youth whose parents were born in the United States (second generation), youth who were the first in their family to be born in the United States (first generation), and youth born in another country (nonnative). Most Anglos reported being second generation ( $n = 38$ ) and only one was nonnative. Half of the Mexican American youth ( $n = 22$ ) were second generation, and a quarter ( $n = 12$ ) were nonnative [Pearson  $\chi^2(2, N = 91) = 13.33$ ,  $p < .001$ ].

There were approximately 30 participants in each of three developmental cohorts: middle school ( $n = 31$ ; 7th and 8th grades), early high school ( $n = 30$ ; 9th and 10th grades), and late high school ( $n = 30$ ; 11th and 12th grades). These grades were selected because they represented years when variation in social cognition was expected to be large due to the emergence of new cognitive skills (Fischer & Kennedy, 1997), and when adolescents begin to think extensively about their ethnic identification (Phinney, 1992a). There were statistically balanced numbers of males ( $n = 41$ ) and females ( $n = 50$ ) in the developmental groups [ $\chi^2(2, N = 91) = .45$ ,  $p > .05$ ]. The number of Mexican American females ( $n = 28$ ), Anglo females ( $n = 22$ ), Mexican American males ( $n = 16$ ), and Anglo males ( $n = 25$ ) did not differ significantly [ $\chi^2(1, N = 91) = 2.59$ ,  $p > .05$ ]. Pearson chi-square tests indicated no between-group differences in the number of ethnic group member across the three developmental groups [ $\chi^2(2, N = 91) = 1.75$ ,  $p > .05$ ].

## 2.2. Materials

### 2.2.1. The Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992b)

The MEIM is a measure that includes 20 questions (four-point Likert response) about ethnic group behaviors, attitudes, and the degree to which one has explored one's ethnic group membership. The responses included the following: 1 (strongly disagree), 2 (disagree), 3 (agree), and 4 (strongly agree). This study included only the ethnic identity scales for identity exploration and achievement (seven items) and affirmation and belonging (five items). We call the first subscale, ethnic identity exploration, and the second, ethnic identity belonging. Cronbach's  $\alpha$  for interitem reliability was .77 for exploration and .83 for belonging. Validity estimates may be found elsewhere (Phinney, 1992b).

### 2.2.2. The Multicultural Experience Inventory (MEI; Ramirez, 1991)

The MEI measures the amount of exposure to other ethnic groups one has had in places of worship, social situations, neighborhood, and so forth. Responses of time spent with "mostly other ethnic

groups” are awarded 3 points, and responses of “half one’s own group and half another ethnic group” are awarded 2 points. The total score is the sum of the 16 items. Cronbach’s  $\alpha$  for the scale was .81.

### 2.2.3. *The Wechsler Adult Intelligence Scale (WAIS-R; Wechsler, 1981)*

The WAIS-R vocabulary subtest was administered to assess variation in verbal skills in English. It was chosen instead of Wechsler Intelligence Scale for Children (WISC) because in a pilot study (Karcher, 1997), there was a ceiling effect in which many older high school students knew most or all of the WISC words.

### 2.2.4. *The Racial/Ethnic Identity Task Analysis (RITA; Karcher, 1997)*

The RITA is a structured interview based on the interview methodology used by Kennedy and Fischer for developmental assessment (Fischer & Kennedy, 1997; Kennedy, 1993). In the RITA interview, participants generate up to 12 spontaneous descriptions of their own and another ethnic group, such as “friendly,” “mean spirited,” “nasty,” or “arrogant.” The RITA interview provides prompts, practice, and varying degrees of contextual support: low support to assess functional intergroup understanding, and high support to elicit the participants’ optimal intergroup understanding.

The first part of the RITA interview provides *low support* and is introduced with the statement “Pretend that I am a Martian. I have just landed and know nothing about culture, ethnicity or racial groups. I want you to tell me everything you can about race and ethnicity to help me understand.” After the adolescent’s response, the interviewer then asks two more specific questions, “What do you think it is like to be Hispanic/Anglo?” and “What do you think it means to be Hispanic/Anglo?” The second part of the interview provides *high support* by asking the same questions followed by prompts that prime the participants’ own concepts and thus support their intercoordination. Three high-support prompts are used after youth provide their initial explanation or description for what it means or is like to be a member of the two ethnic groups: (a) “How would you define that?” (b) “What are other examples of that?” and (c) “Do you see any way in which [that description/explanation] is related any of these other description/explanations? Do any of these seem similar, opposite, or cause the others?” These prompts prime the components of the youths’ responses by asking them to define, give examples, and intercoordinate their descriptions of the meaning of membership of each ethnic group (e.g., as being causal, similar, or opposite).

### 2.2.5. *Skills in intergroup understanding*

The level of cognitive and affective skills was determined by taking the highest degree of coordination and differentiation reflected in a thought unit, using the scale in Table 1, in the high- and low-support conditions. Scores ranged from 1 (*representational mappings*) to 16 (*principles*), and these numbers denote the specific tier (e.g., representational or abstract), the level within a tier (e.g., one single skill, two mapped skills, or a system of several skills), and the two intermediate or transformation steps within a level of a response (shift of focus or substitution; compounding).

### 2.2.6. *Ethnic perspective taking*

Using manualized scoring procedures (Quintana, 1994), ethnic perspective-taking abilities were scored for the highest level presented in the interview. Scores ranged from 0 to 1 (concrete or physicalistic descriptions: EPT0a, 0b); 2–3 (literal descriptions of ethnicity: EPT1a, 1b); 4–5 (social aspects of ethnicity: EPT2a, 2b); to 6–7 (psychological aspects of ethnic group membership: EPT3a,

3b). Dr. Quintana, the author of the EPT model, and the first author of the present study assigned ethnic perspective-taking levels to the high-support RITA interview using Quintana's coding manual.  $\kappa$  for interrater agreement was .73.

Participants received eight scores, because they described both ethnic groups, under two support conditions, and were scored for the highest levels of intergroup understanding skills and EPT in each condition. The four skill levels assessed for each youth were (a) low support for describing one's own group, (b) low support for describing the other group, (c) high support for describing one's own group, and (d) high support for describing another group.

### 2.3. Procedures

The study used a cross-sectional, between-groups design. Participants completed two questionnaires in the following order, the MEIM and the MEI; they then completed the Wechsler vocabulary subtest, and finally, participated in the RITA interview. We varied the order in which each ethnic group (one's own or the other group) was discussed in 40% of the interviews to test for order effects. Two thirds of the interviews were conducted by a member of the youth's own ethnicity to test for interviewer ethnicity effects. Roughly 30% of youths, equally distributed across developmental groups, were interviewed by someone of a different ethnicity.

## 3. Results

The predicted model of socioemotional cognitive skills in intergroup understanding was found to scale as predicted, had high interrater reliability, and demonstrated concurrent validity through moderate correlations with other measures of cognitive development, age, and ethnic identity. The findings revealed that skills in intergroup understanding were related to youths' prior exposure to other groups and that skill levels varied as a function of contextual support. Observed score differences revealed the Anglos demonstrated greater intergroup understanding in the low-support condition. However, once variance in SES, age, and verbal ability were controlled for, the group with the greatest exposure to other ethnic groups, the Mexican American adolescents, demonstrated greater optimal skills, specifically when describing Anglos. The role of prior exposure to other groups in intergroup understanding was more fully revealed when these between-group differences became nonsignificant once exposure to other groups was included in the final MANCOVA. Finally, regression analyses confirmed the hypothesized relationships (a) between high-support intergroup understanding and ethnic identity exploration, and (b) between ethnic belonging and low-support assessments of intergroup understanding, suggesting that optimal and functional skills reflect distinct dimensions of intergroup understanding.

### 3.1. Control variables

Both age and verbal ability were highly correlated with all the cognitive–developmental assessments (see Table 2), but the two ethnic groups did not differ in age [ $F(1,89) = 0.92, p > .05$ ]. Gender did not contribute a main effect or an interaction effect on mean level of cognitive skills. SES (primarily reflecting parental education) was related to optimal intergroup understanding measures, but correlations

Table 2  
Pearson zero-order and partial correlations between intergroup understanding scales and related variables

	Cognitive skills								Covariates		Word counts			SES	Education	
	High-support assessments of cognitive skills of PT				Low-support assessments of cognitive skills of PT				Age	Exp	LS	HS	Total		Dad	Mom
	1	2	3	4	5	6	7	8			11	12	13	14	15	16
<i>High support describing...</i>																
(1) Own group (skills)	–	.68	.48	.39	.37	.34	.33	.28**	.43	.02	.20 <sup>†</sup>	.28**	.23*	–.24*	–.12	–.24 <sup>†</sup>
(2) Other group (skills)	.78	–	.45	.36	.43	.28*	.38	.20 <sup>†</sup>	.31***	.19 <sup>†</sup>	.25*	.19 <sup>†</sup>	.23*	–.19	–.16	–.16
(3) Own group (PT)	.62	.59	–	.54	.28*	.17	.31**	.12	.31***	.21 <sup>†</sup>	.36	.40	.41	–.03	–.03	–.10
(4) Other group (PT)	.51	.52	.62	–	.30**	.36	.34***	.28**	.08	.03	.31***	.43	.39	.02	.06	–.01
<i>Low support describing...</i>																
(5) Own group (skills)	.47	.51	.41	.40	–	.35	.70	.31***	.31**	.10	.23*	.37	.25*	–.08	–.04	–.06
(6) Other group (skills)	.47	.42	.34	.46	.43	–	.30	.42	.26*	.07	.15	.42	.18	–.07	.07	–.05
(7) Own group (PT)	.37	.44	.38	.40	.71	.34	–	.43	.21 <sup>†</sup>	.14	.17	.34***	.20 <sup>†</sup>	–.09	–.07	–.03
(8) Other group (PT)	.28**	.22*	.19 <sup>†</sup>	.30***	.34	.44	.43	–	.18	.20 <sup>†</sup>	.07	.39	.11	–.11	–.12	.01
(9) Age	.64	.51	.48	.27**	.37	.39	.26**	.22*	–	.20 <sup>†</sup>	.07	.12	.05	–.31*	–.24 <sup>†</sup>	–.30**
(10) Exposure	–.05	.12	.17	.04	.10	.04	.17	.21*	.05	–	.01	.08	.02	–.26*	–.29*	–.19
(11) No. of words, HS	.29**	.33**	.40	.36	.27**	.24*	.18 <sup>†</sup>	.08	.17	–.05	–	.39	.94	.01	–.05	–.05
(12) No. of words, LS	.40	.33***	.44	.48	.40	.51	.30	.36	.26**	–.03	.49	–	.49	.04	.12	–.01
(13) No. of words, total	.33***	.34	.46	.44	.31***	.27**	.22*	.12	.16	–.04	.95	.56	–	–.01	–.06	–.06
(14) SES	.26**	.29**	.26**	.22	.10	.15	.09	–.03	–.13	–.24*	.07	.19	.14	–	.75	.84
(15) Father's education	.16	.15	.14	.16	.09	.16	.06	–.12	–.09	–.23 <sup>†</sup>	–.03	.18	.02	.76	–	.58
(16) Mother's education	.24*	.24*	.24*	.22 <sup>†</sup>	.16	.17	.15	.03	.11	–.17	.10	.14	.14	.90	.69	–
(17) WAIS	.61	.57	.50	.38	.30	.34	.20	.06	.54	–.10	.24*	.36	.29***	.59	.44**	.56**

Zero-order correlations are below the diagonal, and correlations partialling WAIS are above the diagonal.

Skills = cognitive skills, PT = ethnic perspective taking, WAIS = Wechsler Adult Intelligence Scale. LS = Low-support condition. HS = High-support condition. Coefficients of .25 or larger are significant at  $p < .001$  (additional asterisk omitted). <sup>†</sup> $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

partialling the effects of verbal ability attenuated these relationships to a nonsignificant level (see Table 2). Finally, tallies of the number of words used by youth in their responses were made for the whole interview and for the high- and low-support conditions. These measures of verbosity were moderately related to skills in intergroup understanding (see Table 2).

To check for systematic bias in measures of intergroup understanding skills that might have resulted from the order of the questions, the ethnicity of the interviewer, or the generational status of the participants, two MANCOVAs were conducted using verbal ability and SES as covariates (to control for between-group differences). A  $4 \times 2 \times 2$  (Skills  $\times$  Interview Order  $\times$  Interviewer Ethnicity) MANCOVA and a  $4 \times 3$  (Skills  $\times$  Generational Status) MANCOVA were conducted on skills scores. There were no main effects to suggest systematic bias caused by the order of questions, the ethnicity of the interviewer, or youths' generational status.

### 3.2. Hypothesis 1: Scalability and developmental properties of skills in intergroup understanding

#### 3.2.1. Guttman scalogram

A Guttman scalogram was constructed to test the scalability of the proposed hierarchical sequence of skills in intergroup understanding. The scalogram provided a strong independent assessment of every step in the scale in Table 1. In the Guttman scalogram presented in Table 3, each task for

Table 3  
Guttman scalogram of predicted profiles for cognitive skills in intergroup understanding

Step	Developmental sequences of profiles										<i>n</i>	Age ( <i>M</i> )	
	Rp3	Rp3a	Rp3b	A1	A1a	A1b	A2	A2a	A2b	A3			
(3) Rp2b	–											0	
(4) Rp3	+											2	13.2
(5) Rp3a	+	+										1	13
E1 +	–	+										1	13
(6) Rp3b	+	+	+									1	13
E2 –	–	+										1	14
(7) A1	+	+	+	+								1	13.9
(8) A1a	+	+	+	+	+							17	13.6
(9) A1b	+	+	+	+	+	+						18	14.3
(10) A2	+	+	+	+	+	+	+					7	16.1
(11) A2a	+	+	+	+	+	+	+	+				16	15.8
(12) A2b	+	+	+	+	+	+	+	+	+			16	16.1
(13) A3	+	+	+	+	+	+	+	+	+	+		6	17
Nonscalable profiles												4	
Total												91	

E = error/nonpredicted sequence; (+) indicates at least one of the youth's responses demonstrated this developmental level; (–) indicates none of the youth's responses demonstrated this developmental level. Steps and abbreviations for developmental sequences of profiles are described in Table 1. A = abstraction; Rp = representation; 1 = single skill (e.g., a representational or abstract thought unit); 2 = two skills mapped in relationship to each other; 3 = three or more skills interrelated into one thought unit system; a = transformational step of substituting one skill for another or shifting focus from one skill to another at the same developmental level; b = transformation step of compounding but not yet fully intercoordinating multiple skills at the same developmental level. Nonscalable profiles are interview transcripts that are partially incomplete or inaudible.

describing the other group in the high-support condition was scored as pass (+) or fail (–). Predicted steps (in Table 1) were numbered (e.g., 1 = Rp2) in terms of increasing complexity, and errors were identified by the letter E. This assessment showed strong scalability with an overall coefficient of reproducibility of .97, with all but two of the 87 profiles fitting the predicted scaling patterns. To test this coefficient against the null hypothesis, Green's (1958) index of consistency was computed. A score greater than .50 is considered significant to reject the null hypothesis, and for this scale, it was .625. The two errors resulted from interviewers' failure to administer sufficient prompts, and with data reflecting these administration errors omitted the remaining data perfectly matched the hypothesized sequence.

**3.2.1.1. Reliability.** To assess interrater reliability, the first author and a trained rater coded a random selection of 40 interview transcripts for level of optimal skills in intergroup understanding (described in Table 1).  $\kappa$  for skill level was .83, reflecting high interrater reliability.

**3.2.1.2. Concurrent validity.** To assess the scale's concurrent validity with another measure of intergroup understanding, zero-order correlations (below the diagonal in Table 2) between cognitive skills and ethnic perspective-taking assessments under the two support conditions were computed (see Table 2; Campbell & Fiske, 1959). Above the diagonal, partial correlations removing the variance explained by verbal ability indicate that even when verbal ability was controlled for, strong correlations among these assessments remained. The partial correlations between intergroup understanding skills and ethnic perspective-taking assessments ranged from .41 to .66, and all but two were significant beyond the .001 level. These correlations provide evidence that the proposed sequence of skills reflects variations in intergroup understanding that are not solely a function of verbal abilities.

**3.2.1.3. Developmental trends.** Another assessment of the predicted scale developmental properties was conducted by examining differences in cognitive skills across the three developmental groups using MANOVA (see Table 4). Planned *t*-test comparisons, using Helmert tests of sequential differences, resulted in statistically significant differences between the highest demonstrated level of cognitive skills in each developmental group compared to the next higher age group, with only one exception in the low-

Table 4  
Means, standard deviations, and power calculations for levels of intergroup understanding skills across developmental groups

Cognitive skills support condition/ group described	Developmental groups								MANOVA	
	Middle school			Early high school			Late high school		<i>F</i> (1,88)	1 – $\beta$
	<i>M</i>	<i>SD</i>	<i>t</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>M</i>	<i>SD</i>		
HS/own group	8.0	2.0	–7.35****	10.3	1.9	–2.97***	11.6	1.4	31.64****	1.00
HS/other group	7.7	1.9	–5.47****	9.57	1.9	–2.46*	10.7	1.9	18.11***	.99
LS/own group	4.4	2.2	–3.24**	5.3	2.5	–2.92***	7.0	2.2	9.61***	.98
LS/other group	4.1	2.2	–3.36****	5.3	2.2	–1.51	6.3	2.7	6.81**	.91

*F* ratios are Wilks' approximation of *F*s. *t* statistics reflect planned comparisons Helmert *t* tests, which compare group means to the subsequent developmental group. HS = High-support condition; LS = low-support condition. See Table 1 for scale. \**p* < .05. \*\**p* < .01. \*\*\**p* < .005. \*\*\*\**p* < .001.

support condition between early and late high school. The size of the developmental range (difference between functional and optimal cognitive skills) increased from a difference in skill levels of 3.6 during middle school to 4.4 in late high school (or 18%). Therefore, the developmental range increased with age (see Fig. 1).

### 3.3. Hypothesis 2: Ethnic group differences as a function of prior exposure to other groups

It was hypothesized that the ethnic group with the greatest prior exposure to other groups would demonstrate higher levels of skills in intergroup understanding because this group would have more task-relevant experiences to draw upon. First, we tested whether the Mexican American youths reported more prior exposure to other ethnic groups. Using a one-way ANCOVA (controlling for differences in age, verbal ability, and SES), mean levels of exposure to other groups were compared between the two ethnic groups (Anglo and Mexican American). The Mexican American youths ( $M = 54.15$ ;  $SD = 12.06$ ) reported greater prior exposure to other groups than the Anglo youths [ $M = 38.22$ ;  $SD = 12.56$ ;  $F(4,82) = 40.18$ ,  $p < .001$ ].

To compare the levels of intergroup understanding skills demonstrated by the two ethnic groups and to better understand the role of prior exposure to other groups, a series of three MANOVA/MANCOVAs were conducted (see Table 5). First, a MANOVA tested between-group differences in the highest level of skills in the high- and low-support assessments. Second, a MANCOVA was conducted that controlled for scores on the vocabulary assessment (WAIS) and SES. Third, a MANCOVA was conducted that controlled for WAIS, SES, and exposure to other groups. A Bonferroni adjustment was made to the conventional significance level for the three omnibus tests ( $.05/3 = .017$ ). Simply comparing raw scores revealed that the Anglos demonstrated greater skills than did the Mexican American youth when they were describing Anglos in the low-support condition [ $F(4,82) = 3.18$ ,  $p < .017$ ]. However, once the variables on which the two groups differed (SES and verbal ability) were used as covariates in a  $4 \times 2$  (Skills  $\times$  Ethnic Groups) MANCOVA, the Mexican American youth demonstrated higher skills when describing Anglos in the high-support

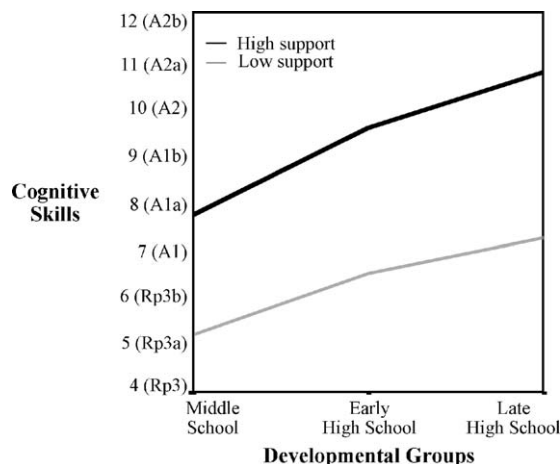


Fig. 1. Developmental range in cognitive skills across developmental groups ( $N=91$ ).

Table 5

Observed and adjusted means, standard deviations, and univariate  $F$  tests for between-ethnic group comparisons on highest level of intergroup understanding skills when youth described their own and another group under varying levels of contextual support

Variables in MANOVA	Ethnic group				Univariate ANOVA $F(1,85)$
	Mexican American ( $n = 42$ )		Anglo ( $n = 44$ )		
	Observed $M$	$SD$	Observed $M$	$SD$	
HS own group	9.47	2.43	10.38	2.17	3.53 <sup>†</sup>
HS other group	9.11	2.43	9.53	2.18	0.78
LS own group	6.39	2.51	6.51	2.58	0.08
LS other group	5.68	2.36	6.87	2.63	8.61**

Variables in MANCOVA	Ethnic group				ANCOVA $F(3,83)$
	Mexican American ( $n = 42$ )		Anglo ( $n = 44$ )		
	Adjusted $M$	$SD$	Adjusted $M$	$SD$	
HS own group	10.06	2.23	9.92	2.17	0.06
HS other group	10.03	2.20	8.60	2.18	5.73*
LS own group	6.12	2.39	5.02	2.58	2.16
LS other group	5.20	2.27	5.22	2.63	0.98

These scores represent averages of all scores from Grades 7 through 12 and therefore do not show developmental variation.

Covariates in the analyses of covariance were verbal ability and SES  $F$  ratios are Wilks' approximation of  $F$ s.

HS = High-support condition; LS = low-support condition; scores are based on the numeric scale presented in Table 1.

<sup>†</sup> $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

condition [ $F(6,80) = 6.60, p < .017$ ]. The final MANCOVA included prior exposure as an additional covariate to SES and WAIS. In this model, there no longer were significant between-group differences [ $F(7,79) = 1.27, p > .017$ ]. Thus, there were no differences in skill level after between-group differences were accounted for.

### 3.4. Hypothesis 3: Support effects on cognitive skills

To assess the effect of providing high- versus low-support conditions on demonstrations of intergroup understanding, paired  $t$  tests were conducted comparing the highest level of skills the youth demonstrated when describing their own and the other group under the two levels of support. When youth were explaining membership in their own group, they did so more complexly with high support ( $M = 9.94; SD = 2.33$ ) than with low support [ $M = 5.55; SD = 2.53; t(89) = 17.38, p < .001$ ]. Similarly, youth describing the meaning of ethnic group membership for other groups did so more complexly with high support ( $M = 9.30; SD = 2.30$ ) than with low support [ $M = 5.22; SD = 2.52; t(89) = 15.42, p < .001$ ].

Was there an own-group bias? All youth also described their own group more complexly than they described the other group [ $t(89) = 4.02, p < .001$ ], but only in the high-support condition. This pattern of in-group bias held even when the  $t$  tests were computed for the two ethnic groups separately: both groups demonstrated in-group bias only in the high-support conditions. In subsequent analyses, we chose to examine how youths described other groups, rather than how they described their own groups, in part, because of the implications for interventions that might be used to promote more positive intergroup relations.

### 3.5. Hypothesis 4: The interaction of ethnic identity and support conditions

The fourth hypothesis was that the complexity of the cognitive skills that youth use to describe other ethnic groups under high- versus low-support conditions would be explained by different aspects of ethnic identity. Specifically, it was hypothesized (a) that ethnic identity exploration would best explain optimal skills because both identity exploration and optimal skills reflect more abstract reflection activity and (b) that ethnic identity feelings of belonging would best explain functional skills because both belonging and functional skills primarily reflect the cognitive and affective processes related to everyday socialization practices. Hierarchical linear regression analyses, weighted by age, were computed to see if low- and high-support assessments of cognitive skills were explained differently by these two dimensions of ethnic identity.

#### 3.5.1. Ethnic differences in ethnic identity

In preliminary analyses examining the ethnic identity scales, neither a main effect for developmental group on ethnic identity nor any interactions between developmental group and ethnic group neared significance. But the ethnic groups differed on the two scales. Mexican American youth reported both greater ethnic identity exploration ( $M = 2.89$ ;  $SD = .51$ ) than Anglos [ $M = 2.65$ ;  $SD = .45$ ;  $F(1,85) = 10.49$ ,  $p < .001$ ] and greater ethnic belonging ( $M = 3.41$ ;  $SD = .44$ ) than Anglos [ $M = 2.99$ ;  $SD = .71$ ;  $F(1,85) = 5.62$ ,  $p < .05$ ].

#### 3.5.2. Predicting optimal and functional cognitive skills

The correlation matrices traditionally presented with regression models were conducted and are presented separately for the two groups in Table 6. To account for ethnic group differences in intergroup understanding skills and ethnic identity subscales, ethnicity was included as a dummy variable in the two regression models, with Mexican American coded 0 and Anglo coded 1. Two regression models were constructed to explain how youths described other groups, the first under high-support conditions and the second under low-support conditions. Variables were entered based on causal priority in terms of their contribution to skills in intergroup understanding (Cohen &

Table 6

Part correlations between intergroup understanding skills and ethnic identity variables partialling out vocabulary ability and age ( $n = 87$ )

Scale	Cognitive skills				Ethnic identity	
	High support		Low support		5	6
	1	2	3	4		
(1) HS/own group	–	.47***	.09	.24	.05	.07
(2) HS/other group	.84***	–	.24	.24	.10	–.09
(3) LS/own group	.59***	.61***	–	.27 <sup>†</sup>	–.19	–.21
(4) LS/other group	.38**	.35*	.50***	–	–.03	–.44**
(5) EI-exploration	.37*	.38*	.26	.30 <sup>†</sup>	–	.49***
(6) EI-belonging	.19	.24	.29 <sup>†</sup>	.30 <sup>†</sup>	.44**	–

Correlations for Mexican Americans are below the diagonal ( $n = 40$ ); for Anglos, they are above the diagonal ( $n = 42$ ). HS = High support; LS = low support; EI = ethnic identity. <sup>†</sup> $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 7  
Hierarchical regression analyses for variables predicting optimal and functional skills

Step/predictor variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>T</i>
<i>Optimal skills when describing other groups<sup>a</sup></i>				
(1) Verbal ability	.09	.01	.63	6.64***
(2) Ethnic group	–.95	.42	–.22	–2.28*
(3) Identity exploration	.86	.43	.20	2.06*
(3) Identity belonging	–.21	.34	–.06	–.62
(4) No. of words	.001	.000	.21	2.38*
<i>Functional c skills when describing other groups<sup>b</sup></i>				
(1) Verbal ability	.03	.02	.19	1.66 <sup>†</sup>
(2) Ethnic group	–.19	.54	–.04	–.36
(3) Identity exploration	.99	.57	.19	1.75 <sup>†</sup>
(3) Identity belonging	–1.23	.43	–.31	–2.87**
(4) No. of words	.02	.01	.44	4.42***

<sup>a</sup>  $F(5,80) = 12.61, p < .001; R^2 = .43$  in Step 4.

<sup>b</sup>  $F(5,80) = 8.38, p < .002; R^2 = .36$  in Step 4.

<sup>†</sup>  $p < .10, *p < .05, **p < .01, ***p < .001$ .

Cohen, 1983). Thus, verbal skills were entered first, then ethnicity, then the two ethnic identity scales simultaneously, and finally the total number of words in the youth's response.

In the first model that predicted optimal skills, four variables (verbal ability, ethnic group, ethnic identity exploration, and number of words) were significant predictors of optimal skills (see Table 7). Ethnic identity belonging was not a significant predictor. As hypothesized, the ethnic identity exploration subscale scores were a better predictor of optimal cognitive skills than the ethnic belonging subscale scores, even when verbal ability, ethnicity, and number of words were accounted for (see Table 7).

In the second model, predicting skills in the low-support condition, ethnic identity belonging was a better predictor of functional cognitive skills than the ethnic identity exploration scores. Verbal ability and number of words were significant predictors of functional skills, but there was no effect of ethnicity. The low-support model predicting intergroup understanding accounted for somewhat less variance in intergroup understanding ( $R^2 = .36$ ) than the high-support model ( $R^2 = .43$ ).

#### 4. Discussion

The proposed model describing cognitive skills of intergroup understanding reflects a highly scalable, reliable, and valid developmental sequence. The findings suggest the development of intergroup understanding may differ between ethnic groups as a function of differences in their exposure to other groups and the relative meaning of ethnic identity for the two groups. Perhaps most important, however, are the findings that varying assessment conditions elicits a developmental range from functional to optimal skills in intergroup understanding, the two ends of which seem to involve different aspects of ethnic identity.

We expected the group who had the most exposure to other groups to demonstrate more complex intergroup understanding. Piaget (1994) and Werner (1948) both suggest that individuals' understanding becomes more complex by integrating and building on simpler, earlier understandings: cognitive development occurs when individuals differentiate several experiences and integrate them into a superordinate skill (such as an abstraction). After controlling for SES and verbal ability, the group with more exposure to other groups (*viz.*, Mexican Americans) demonstrated greater skills in intergroup understanding. Yet, once between-group differences in exposure to other groups was accounted for, along with SES and verbal ability, there were no significant differences between ethnic groups in intergroup understanding.

This finding has important implications for the study of intergroup understanding because most prior research has not reported the level of support in assessment conditions. We chose to assess the two ends of the developmental range in intergroup understanding, high versus low contextual support, for two reasons. First, these support conditions reveal the magnitude of the developmental range in adolescent intergroup understanding. Second, high-support assessments reveal the cusp of adolescents' emerging abilities (*e.g.*, what they might demonstrate in structured class discussions), whereas low-support assessments reveal the kind of thinking youth tend to do independently, such as in their everyday interchanges in school hallways. These findings reveal how important it is for researchers in the area of intergroup understanding to use models that can account for these variations in assessment conditions.

In this study, support effects were large and significant. When supported, the adolescents were able to demonstrate much more complex skills. Between low to high-support assessments, individuals increased in the complexity of their skill by an amount that in ontogenesis would take at least 4–6 years. The developmental range between optimal and functional intergroup understanding not only remained significantly different across adolescence but also became wider with age, as found in previous research (Fischer *et al.*, 1993; Fischer & Kennedy, 1997; Fischer & Kenny, 1986). This finding indicates that adolescents may demonstrate levels of spontaneous, everyday (functional) intergroup understanding that are far below their optimal abilities.

The findings also confirm the hypothesis that optimal understanding is likely influenced by the degree of adolescents' self-initiated exploration into the meaning of their own group membership. Yet, this effect was significantly stronger for Mexican Americans than for the Anglos, presumably because the Mexican American youth had accrued more prior exposure to other groups upon which to base their identity exploration and with which to construct more complex responses. Perhaps, it was this experience that led them to have reflected more on the meaning of culture than Anglos. Such reflection may serve as practice for the task of intergroup understanding. On the other hand, the Anglo youth reported less exposure to other cultural groups and previously may have actively avoided reflecting on their ethnicity by minimizing their exposure to other cultural groups. This is another reason why it is especially important for adults to structure opportunities for intergroup contact and cultural reflection for Anglo youth.

These findings about group differences and support effects are exciting and disappointing at the same time. It appears that experience thinking about one's own group (such as by exploring one's ethnic identity) may contribute to more complex forms of social cognition, which raises the possibility of structuring interventions or providing opportunities at school for such cultural exploration. These findings also are disappointing, however, because they suggest in-group bias persists, even in highly supportive contexts. In addition, in everyday, less supportive environments, ethnic belonging may

better explain the everyday, functional level intergroup understanding youth demonstrate, such that the effects of interventions encouraging youths' reflection on their ethnic identity may not transfer to the larger social ecology if the school environment as a whole (including members of adolescents' own ethnic groups) do not facilitate supportive environments that promote more mature intergroup understanding.

There are several implications of this study for interventions in schools. The relationships between ethnic identity processes reveal opportunities for schools to facilitate intergroup understanding by encouraging ethnic identity exploration. It appears that academic exercises that encourage reflection on the meaning of ethnic membership in youths' own lives may be helpful for both minority and majority groups, but focusing on the ways in which ethnicity provides a sense of belonging may evoke negative consequences for majority group youth. For the Anglo youth in this study, when responding in the unsupportive condition, there was a negative relationship between feelings of ethnic belonging and their intergroup understanding.

The prompts we used to elicit intergroup understanding also may work well with youth in classroom interventions. First, helping youth to think abstractly by encouraging them to define ethnic and racial constructs and to consider their application across contexts and groups may help promote the perception of between-group similarities. This should heighten empathy and openness among the youth in different groups. Second, the meaning of ethnic group membership seemed easier to explain than the experience of ethnic group membership, perhaps because the experience of group membership seems more personal and subjective. All of the youth were able to respond to the question, "What does it mean to be a member of this/that group?" This statement allowed them to respond either literally, from an emotional perspective, or with an acknowledgement of social forces related to group membership. The question, "What is it like to be a member of this/that group" seemed to evoke more confusion and defensiveness. "How would I know" or "It's like nothing—it doesn't mean anything" were frequent responses to this question from youth in both groups. Perhaps helping youth to see the relationships between their own reflections on their ethnic identity and what ethnic group membership might mean for members of other groups would be a better approach to promoting intergroup understanding than asking youth to try to generalize and imagine or explain what it is like to be a member of another group.

Finally, the phenomenological experience of ethnic identity for majority and minority group members may be so fundamentally different that it is unwise to assume the same constructs can be applied similarly across groups. Ethnic pride was negatively related to everyday, functional intergroup understanding for Anglo youth but not for Mexican American youth. Conversely, ethnic identity exploration was more strongly related to intergroup understanding for the Mexican American youth than for the Anglo youth. Given these differences, it is unclear whether interventions that encourage youth to explore the meaning of their ethnic group membership will be equally effective for majority and minority youth. Future research should explore how much group differences in intergroup understanding reflect limited degrees of ethnic identity exploration among Anglos as opposed to fundamental differences in the meaning of ethnic identity between majority and minority youth.

There were several limitations to the study. The first is the limited generalizability of these findings to other ethnic groups and to the same ethnic groups in different contexts. This study assessed the intergroup understanding skills of Mexican Americans and Anglos in South Texas. Texas is a state with a history of education and economic segregation between these two groups, but

also a state with one of the highest representations of Hispanic people (approximately 38%). Schools in which youth from different ethnic groups that are more similar in SES, where there is a smaller ratio of Hispanic to Anglo students, or where there has not been a history of interethnic strife between these groups, may result in different findings, particularly regarding the relationship between ethnic identity and functional intergroup understanding.

Another limitation is that over half of the variance in intergroup understanding remained unexplained. Future research should incorporate other relevant variables. For example, we were not able to include the contribution that religiosity might make to the ways in which identity dimensions affect intergroup understanding. It also might have been useful to consider other ways to assess parental contributions to youths' intergroup understanding, beyond their education levels and employment (i.e., SES), such as parents' direct efforts to encourage their children to think about, and perhaps even be more considerate and appreciate of, intergroup differences.

## **5. Conclusion**

Promoting mature intergroup understanding among youth will be an important task in the future for parents, teachers, and youth program developers, and it will be greatly facilitated by creation of better models for describing how youth think about other cultural groups. Creating valid models is both complex and important because variability in verbal ability and cognitive complexity during adolescence may undermine the reliability of some models of intergroup understanding, especially models that do not directly measure the structure of intergroup understanding or assess variation in support conditions. This study highlights two important issues in the assessment of intergroup understanding: variations in contextual support and the developmental coherence of the measurement models. This study presents tools, drawn from dynamic skills theory, which may facilitate the improvement and more effective use of developmental models of intergroup understanding. Specifically, this model illustrates that although high-support, optimal-level assessments reveal what youth can do, low-support, functional-level assessments indicate what youth are likely to do in ordinary circumstances and provide a more realistic analysis of the sort of thinking that informs adolescents' prejudices and everyday attitudes. Therefore, functional-level responses may provide the starting point for interventions that aim at preventing misunderstanding while optimal assessments may suggest levels of intergroup understanding that represent reasonably attainable intervention or classroom guidance activity goals.

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