12-1992

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JOURNAL OF SPORT & EXERCISE PSYCHOLOGY, 1992, 14, 392-404

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This study examined baseball players' conceptions of umpires' authority. Eighty male players, ages 6–22 years, completed an abbreviated Inventory of Piaget's Developmental Tasks (Furth, 1970), which was used to measure cognitive development. They then heard recorded scenarios describing conflicts with an umpire and a parent. Players indicated if they would argue with the authorities, why they obey the authorities (obedience), and why the authorities get to make decisions (legitimacy). Obedience and legitimacy responses were categorized into Damon's (1977) three levels. Measures of arguing, obedience, and legitimacy were analyzed for four age levels and three levels of cognitive development. Older and more cognitively developed players were more likely to argue with authorities. Conceptions of obedience and legitimacy were positively associated with age, though they were not related to scores of cognitive development. The positive relationship between age and authority conceptions and the absence of a relationship between cognitive development and authority conceptions are both consistent with Damon's position.

Key words: umpires, authority, cognitive development, parent/child authority, perceptions of authority and age, baseball

This study examined the development of athletes' conceptions of authority in two social domains: organized sport (baseball) and the family. Piaget (1932/1965) first studied children's perceptions of authority and game rules in his investigations of the origins of moral judgment. More recent work has sought to clarify Piaget's original ideas about authority figures. Damon (1977) outlined the developmental changes in children's perceptions of authority figures, focusing on parents. He suggested that children's conceptions of legitimacy of authority and obedience to authority progress through three general developmental levels, each with two sublevels. Damon's three primary levels (Damon 1977, 1983) are outlined below:

- Level 0: Legitimacy of authority is based on the self's emotional relationship with the authority, a need to identify with the authority, or the self's

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respect for the authority's physical attributes (e.g., sex and size). Obedience to authority is based on the self's desire to submit to the authority's commands in order to have wishes fulfilled.

- Level 1: Legitimacy of authority is based on the perceived social and physical power of the authority or a special talent or ability the authority figure possesses. Obedience to the authority is based on the self's respect for the authority figure's ability to either enforce commands based on superior strength or social skill or the authority's talent to achieve results that the self cannot.
- Level 2: Legitimacy of authority is based on the self's recognition that the authority has prior training or experience that makes the authority a more competent leader or that the authority possesses specific attributes that apply to the given context. Obedience to the authority results in the self's recognition that the authority's power is situationally determined, temporary, and mutually agreed upon by the self and the authority figure.

For example, when a Level 0 child is asked why she or he obeys, the child may respond, "Because she's my mommy." At Level 1 the same question may be answered, "Because he will ground me if I don't." At Level 2 the response might be, "Because they've been through all this before and know what they are doing, and it's best to listen to them."

In research using both cross-sectional and longitudinal samples of 4- through 10-year-old children, Damon (1983) found these levels of authority perceptions to be sequential and directional. Over a 2-year period, no children regressed in their conceptions of authority. Instead, most children moved upward one to two sublevels of development.

Piaget (1932/1965) asserted that the development of authority conceptions depends partly on cognitive development and partly on common social interactions, most notably with parents and peers. In contrast, Damon was not committed to the notion that cognitive development plays a central role in authority development. Instead, Damon (1981) suggested that cognitive development and authority development follow parallel yet independent paths. He indicated that although cognitive and authority development may be generally similar, authority development may not be controlled by cognitive developmental transitions. In other words, reasoning about the social world (such as authority figures) and reasoning about the physical world (general cognitive development as studied by Piaget) are distinct domains of functioning. Although there may be some superficial similarities between the two domains, namely sequential and directional patterns of developmental change, the two domains remain essentially separate due to the particular objects of knowledge, either the physical or social world.

Others, most notably Kohlberg (1976) and Furth (1980), agree with Piaget's original position. For these scholars, cognitive development provides the framework necessary for the construction of new knowledge. The particular knowledge being acquired, either of the social world or the physical world, matters not, for the individual's cognitive operations serve a general organizing function and are not limited to a particular type of experience. Thus, this matter regarding the relationship between cognitive and social development, such as authority development, has not yet been settled.

For a number of years, sport psychologists have examined the relationship

between sport participation and moral development. Studies by Bredemeier and her colleagues (Bredemeier & Shields, 1984a, 1984b, 1986; Bredemeier, Weiss, Shields, & Cooper, 1986) have identified significant relationships between sport participation, moral reasoning, and aggression. For example, Bredemeier et al. (1986) examined boys and girls in fourth to seventh grades and found that "boys' participation and interest in high contact sports and girls' participation in medium contact sports . . . were positively correlated with less mature moral reasoning and greater tendencies to aggress" (p. 304). Similarly, research has indicated that nonathletes in high school and college reason at higher moral levels than basketball players in the same age group (Bredemeier & Shields, 1984a, 1984b, 1986).

In addition to these findings, the growing interest in sport and child development has led to proposals about appropriate guidelines for studying children in sport. Weiss and Bredemeier (1983) fittingly indicated that sport psychology research involving children must be firmly grounded in the appropriate developmental psychology literature. The use of Piaget's and Damon's models to generate the hypotheses of the current study is consistent with that proposition. However, this study goes beyond the proposals of Weiss and Bredemeier in two ways. First, the developmental parameters of this study extend beyond childhood into adolescence and early adulthood. Although the work of Damon (1977, 1981, 1983) appears to be limited to childhood, his standard for scoring children's authority conceptions is based on the most advanced level of reasoning demonstrated by the subject. Damon indicates quite clearly that any subject's responses are often spread across several adjacent levels of reasoning. Consequently, it is reasonable to assume that although levels of authority conceptions begin to differentiate during childhood, these conceptions continue to develop at later ages. Indeed, later investigations (Turiel, 1978) examined authority conceptions into early adulthood. Further, the purpose of the current study was not so much to replicate Damon's work as to extend his model to the world of sport authorities. In this context, the focus was on the development of authority conceptions throughout a wide range of amateur baseball. Thus, the participants ranged in age from the youngest players available (age 6) through the college level.

Weiss and Bredemeier (1983) also proposed that investigators should sample children according to age-related criteria, a proposal that some authorities would moderate. Although age ranges frequently accompany descriptions of developmental stages, they are offered primarily as convenient guidelines, not as rigid strictures. There is no guarantee that an individual of a given age functions at a particular developmental stage (Furth, 1981; Piaget, 1971). A more reliable method of determining developmental level is to assess it directly. Thus, in the current study there was an effort to sample across broad age categories representing concrete operations, early formal operations, and consolidated formal operations. However, at the same time, cognitive development was measured directly in an attempt to more precisely relate authority conceptions to cognitive development.

Based on this background, the present study addressed two questions: Do conceptions of sports officials' authority show the same type of age-related progression that Damon reported for parental authority? and What is the relationship between cognitive development and authority conceptions? In considering the first question, we assumed that the parent/child authority relationship serves as the prototype for other authority/subordinate relationships. The process of

examining both parent/child and umpire/player relationships in this study allows a between-domain comparison of these two authority relationships. Certainly there are recognizable differences between the parent/child and umpire/player relationships, the most obvious being the contrast between family and sport contexts. However, Damon (1980) suggested that perceptions of authority are transcontextual. That is, knowledge of authority is not entirely situation specific but relies instead on some universal properties applicable across relationship contexts. Therefore, it was hypothesized that changes in athletes' perceptions of sports officials' authority would show the same developmental progression that Damon reported for parents.

Because Damon's (1977) model suggests that conceptions of authority evolve toward a view of authority as situational and fallible, it was also hypothesized that older players, players with higher cognitive development, and players with more sophisticated authority conceptions would be more likely than younger players to report that they would argue with officials.

In considering the second question, we must recognize that there is still disagreement regarding the influence of general cognitive development on social conceptualizing, such as authority conceptions. We addressed this issue by directly measuring the cognitive development of the participants to determine if any relationship existed between their cognitive development and their authority conceptions. The study was considered exploratory in this regard, and no specific hypothesis was stated.

Method

Participants

Participants were 80 male baseball players who volunteered and were paid $5. There were 20 participants in each of four age categories: 6–9 years (M = 8.30, SD = .57), 10–13 years (M = 11.25, SD = 1.21), 14–17 years (M = 15.20, SD = .77), and 18–22 years (M = 19.75, SD = 1.45). Participants in the three younger age groups were members of 17 teams from a Tris Speaker Baseball League located in two adjacent middle- to upper-middle-class communities. Those in the oldest age category were all members of an NCAA Division III baseball team from a university located in one of those communities.

Materials

Measure of Cognitive Development (IPDT-A). An abbreviated form of Furth's (1970) Inventory of Piaget's Developmental Tasks (IPDT) was used to assess participants' levels of cognitive development. The IPDT was developed to provide a measure of both concrete and formal tasks while requiring little in the way of language and reading skills. Patterson and Milakofsky (1980) assessed the reliability and validity of the IPDT using a group of 542 subjects, ranging from third graders to adult college students and including people who were developmentally disabled. These authors reported test-retest coefficients for third graders (.75) to college students (.95), with seven of eight coefficients significant at $p<.01$. (Though the current study included participants younger than those studied by Patterson and Milakofsky, the average age of participants in the youngest group in the present study was 8 years, or about third grade.) Split-half

reliability coefficients ranged from .63 for sixth graders to .84 for ninth graders. Construct validity was demonstrated in a number of ways. Consistent with Piaget's theory (1970), there were significant increases in total IPDT scores from third to ninth grade but no difference between ninth graders (14-15 years) and college students (18-19 years). Similarly, the mean number of tasks mastered (which was computed using a 75% criterion level) was greatest among older subjects: none by third graders, 5 of 18 by sixth graders, 12 by ninth graders, and 15 by college students. Finally, there were significant correlations between IPDT scores and standardized intelligence and achievement tests.

Five of the original 18 subtests of the IPDT, totaling 20 items, made up the IPDT-A. The choice of the five subtests was based on pilot testing with baseball players from the same groups used in the study. This testing suggested that all subjects in the sample would master the five easiest subtests of the IPDT; these subtests were discarded. Using data reported by Patterson and Milakofsky (1980), which identified subtests mastered by different age groups, we chose five subtests that would provide a distribution of scores among the subjects to be sampled. For example, Patterson and Milakofsky reported that 70% of third graders got three out of four items correct on the Levels subtest, so this was selected as an easy subtest. Conversely, only 46% of college students got three out of four items correct in the Classes subtest, so this was chosen as the most difficult subtest. The subtests chosen were Levels, Conservation of Weight, Probability, Shadows, and Classes.

Conflict Scenarios. Two tape-recorded scenarios, with wording slightly altered to accommodate younger subjects, were used to present conflict situations to the participants. These were patterned very closely after those used by Damon (1977) in his studies of children's perceptions of parents' authority. The umpire scenario was presented first and stated the following (statements in parentheses were used with younger subjects):

> Your baseball team is playing for the championship. (Because it is for the championship, the umpires are very experienced adults.) If your team wins this game, you are the champions. Your team is behind by one run. There are two outs, but there is a runner on first, and you are on second base. There are three balls and two strikes on the batter, and you will be running with the pitch. If the batter gets a hit, you are sure you can score the tying run and keep your team in the game. If you score the tying run you will be a hero. If you make an out, your teammates will be very disappointed with you, and you will feel bad for not tying the game. The batter hits the ball into the outfield but not far from the fielder. You run hard and slide into home plate. You are sure you are safe and have tied the game for your team. The umpire calls you out. The game is over. Your team loses. You are very upset and turn to look at the umpire.

The parent scenario stated the following:

> Imagine the following situation at home. Let's say that your parents have a rule that you can't go out (out to play) on the weekend until your room is cleaned up. Early one Saturday, your best friend comes over and asks if you would like to go to Cedar Point (a regional amusement park) with him (with him and his parents); he is (they are) leaving immediately. You want to go,

but your room is a mess. You tell your parents that you do not have time to clean your room now, but that you will clean it when you get back. Your parents tell you that you must stay home and clean your room. Your friend leaves. You miss the trip to Cedar Point. When he is gone you are very upset. You turn to your parents.

Structured Interviews. Structured interviews were used to question participants about their reactions to the conflict scenarios. These, too, were patterned after interviews used by Damon (1977), but questions were reworded to be appropriate to the content of the scenarios. There were six questions and additional probes, following the same pattern for the umpire and parent scenarios. The following three questions were relevant to the current study:

1. What would you do? (If a participant said he would argue or complain, this was followed up by probes asking how he would argue, how long he would argue, and if he would argue even if he knew it would do no good.)
2. Even when players (kids) disagree with umpires (parents), they usually obey them. Why do you obey? Why do you obey even when you think they are wrong? (This question was used to assess the dimension of authority that Damon, 1977, labeled *obedience.*)
3. Why does the umpire (parent) get to make the calls (make the rules)? What gives this person the right? (This question was used to assess the dimension of authority that Damon, 1977, labeled *legitimacy.*)

Procedures

Letters announcing and describing this study were mailed to 503 members of a Tris Speaker Baseball League and 40 members of an NCAA Division III baseball team. Players (or their parents, in the case of younger athletes) called the investigators to volunteer. About 18% of those who were sent letters volunteered. There were excess volunteers in each group, and participants were accepted on a first-come, first-served basis. Each volunteer was given an individual appointment time, and the experimenter met with each participant at a university psychology department laboratory. Each session lasted approximately 30 min. Parents signed permission forms for participants in the three younger age groups, and all participants were read a statement describing the study and informing them of their right to withdraw at any point without question or loss of the $5.

The experimenter first administered the IPDT-A, using the standard instructions from the IPDT. Participants then listened to the recorded umpire conflict scenario and responded to the structured interview questions. Finally, participants listened to the parent conflict scenario and responded to the questions. All responses were recorded on a microcassette recorder. After this the experimenter explained the purpose of the study, answered any questions, and thanked the participants. Three months later, a letter was sent to each participant describing the results and inviting further questions.

Participants' recorded responses were transcribed, and the senior author categorized responses related to obedience and legitimacy into the six levels identified by Damon (1977), blind to participants' ages and developmental levels. Because there were so many empty cells in these tables, responses were recoded so that they were categorized into Damon's three primary levels of

development. To assess the reliability of these judgments, we trained an independent judge, who categorized the responses, blind to the purpose of the study and to the ages and cognitive development levels of the participants, into the three levels.

Results

Reliability in the Use of Damon's Three-Level Model

We computed kappa statistics (κ) (Siegel & Castellan, 1988) and Pearson r to assess the reliability of the categorization of participants' responses to interview questions using Damon's (1977) three-level model. Landis and Koch (1977) reported that kappa values above .60 indicate that two raters have good to excellent agreement. Interrater reliabilities for conceptions of obedience for umpires ($\kappa = .72$, $r = .78$), legitimacy for umpires ($\kappa = .68$, $r = .77$), obedience for parents ($\kappa = .76$, $r = .70$), and legitimacy for parents ($\kappa = .86$, $r = .90$) were all significant, $p<.01$.

Adequacy of the IPDT-A

To evaluate the utility of the IPDT-A, the authors assessed its reliability and construct validity. To assess reliability, we computed Chronbach's alpha for the 20 items among the 80 participants. Alpha was found to be .76, a figure that is in the middle of the range of split-half reliabilities reported by Patterson and Milakofsky (1980) for the IPDT and above Nunnally's (1978) acceptable level of .70. Reliabilities among the five 4-item subtests were as follows: Levels = .58, Conservation of Weight = .80, Probability = .45, Shadows = .65, and Classes = .49. Alphas were also computed for the entire scale for each of the four age groups. They were as follows: 6- to 9-year-olds = .57, 10- to 13-year-olds = .79, 14- to 18-year-olds = .76, and 19- to 22-year-olds = .63. A number of these figures are below traditionally acceptable levels.

To assess the construct validity of the abbreviated measure, we analyzed the pattern of mean scores across the four age groups. Following Piaget's (1970) formulation of cognitive development, scores on this measure should increase until about age 12. At that age, basic cognitive development is complete (most individuals having attained the stage of formal operations), and mean scores on the IPDT would not be expected to increase significantly. This is the pattern reported by Patterson and Milakofsky (1980) in their evaluation of the IPDT. Descriptive statistics for scores of the four age groups on the IPDT-A are presented in Table 1. A one-way ANOVA of the means revealed significant differences among the four groups, $F(3,76) = 8.59$, $p<.001$. Follow-up with Scheffe's procedure indicated that the three older groups all scored significantly higher ($p<.05$) than the youngest group, but there were no significant differences among the three older groups. This is consistent with what Piaget would have predicted. Mean scores increased in participants up to the 10- to 13-year-old group (mean age 11.3 years) and then ceased to increase significantly.

Table 1

Descriptive Statistics for IPDT-A Scores of Four Age Groups

	6-9 years	10-13 years	14-17 years	18-22 years
M	11.4[a]	14.30	15.50	15.90
SD	2.85	3.74	3.19	2.51

[a]Differs significantly from the other three means, $p < .05$.

Despite the limitations of the internal consistency figures for the IPDT-A, the authors decided to pursue the analysis, and the IPDT-A scores were used to categorize the levels of cognitive development of the participants.

Relationship of Age to Conceptions of Authority

We calculated gammas (γ) to assess the association between age group categories and scores for Damon's three stages, which had been assigned by the raters to responses to interview questions about umpire and parent authority. Gamma is a nonparametric measure of association appropriate for ordered categorical data (Siegel & Castellan, 1988). Scores for obedience (Why do you obey umpires/parents?) and legitimacy (Why do umpires/parents have the power to make decisions?) were analyzed separately. This analysis revealed positive associations between age and conceptions of obedience ($\gamma = .62$, $p<.01$) and legitimacy ($\gamma = .70$, $p<.001$) for umpires, and between age and conceptions of obedience ($\gamma = .59$, $p<.01$) and legitimacy ($\gamma = .63$, $p<.01$) for parents. Thus, older players tended to have more mature conceptions of authority for both parents and umpires.

Relationship of IPDT-A to Conceptions of Authority

We conducted similar analyses to assess the relationship between IPDT-A categories and conceptions of obedience and legitimacy. To conduct these analyses, we divided scores on the IPDT-A into three ordered categories: Low (scores from 7-11), Medium (12-16), and High (17-20). We conducted an analysis of variance to determine if this categorization created levels of cognitive development that were significantly different. A one-way ANOVA indicated that the differences among the mean IPDT-A scores were significant, $F(2,77) = 286.22$, $p<.001$. Follow-up analysis with Tukey's HSD procedure revealed that those in the Medium category had a mean score significantly higher than those in the Low category, and those in the High category had a mean score significantly higher than those in the Medium category. Thus, this categorization created three groups with reliably different levels of cognitive development.

In the subsequent analysis of the relationships between authority conceptions and levels of cognitive development, we evaluated the gamma values at an alpha level of .01 to avoid an inflated probability of Type I errors. With this

standard, none of the associations between categories of cognitive development and conceptions of obedience and legitimacy for parents or for umpires were significant.

Relationships Between Authority Conceptions for Parents and Umpires

We analyzed the authority conception scores for parents and umpires for the 80 participants to assess their association. This was done separately for obedience and legitimacy scores. This analysis revealed a significant positive relationship between obedience conceptions for parents and umpires ($\gamma = .73$, $p<.001$), but the relationship between legitimacy scores was nonsignificant.

Arguing, Age, IPDT-A Scores, and Conceptions of Authority

We analyzed players' reports regarding whether they would argue with authorities about disputed decisions to determine if these reports were related to age, cognitive development as measured by the IPDT-A, and level of conception of authority. This analysis indicated significant relationships between age and reports of disputing umpires ($r = .50$, $p<.001$) and parents ($r = .39$, $p<.001$). Older players were more likely to report they would dispute parents and umpires. There were also significant relationships between cognitive development as measured by IPDT-A and reports of disputing umpires ($r = .50$, $p<.001$) and parents ($r = .28$, $p<.01$). Players with higher levels of cognitive development were more likely to report that they would dispute authorities.

We conducted logistic regressions (Tabachnick & Fidell, 1989) to determine if cognitive development was significantly related to whether players would argue with authorities when the influence of age had been removed. In this analysis, the dependent variable was the dichotomy of whether or not participants had reported they would argue with parents and umpires. Age was entered as the first predictor variable, and IPDT-A score was entered last. These analyses indicated that IPDT-A scores were significantly related to arguing with umpires when the effects of age had been removed ($r = .26$, $p<.01$), but IPDT-A scores were not significantly related to arguing with parents with the effects of age removed.

Finally, the relationships between authority conception scores and responses about arguing with parents and umpires were calculated. These analyses indicated significant relationships between reports of arguing with umpires and conceptions of obedience ($\gamma = .65$, $p<.001$) and legitimacy ($\gamma = .61$, $p<.01$) for umpires. The more mature the conceptions of obedience and legitimacy, the more likely participants were to report they would argue with umpires. There was also a significant relationship between conceptions of legitimacy for parents and arguing with parents ($\gamma = .62$, $p<.01$). The more mature the conception of legitimacy of authority of parents, the more likely participants would argue with parents. However, the relationship between conceptions of obedience for parents and arguing with parents was not significant.

Discussion

Agreement With Damon's Model

There was support for the hypothesis that the development of players' conceptions of sport officials' authority shows the same type of increasing sophistication as individuals grow older that Damon (1977) found in his research about

parental authority. The descriptions of officials' authority were progressively more sophisticated as players got older, and this pattern was apparent for both obedience and legitimacy.

When asked why they obey umpires, the youngest players were most likely to appeal to their emotional relationships with the umpire (e.g., "If I don't he'll be angry and not like me."). Among older players the responses tended to focus on social power (e.g., "He's in charge," or "He's the boss."). Among the oldest players responses shifted to comments about objectivity and the mutual benefit of having someone play such a role (e.g., "He's more neutral, so you don't argue all the time."). Thus, the understanding of obedience tended to be less personalized and to focus more on social function among progressively older players.

A similar progression was apparent in the players' responses to the question about why the umpire has the power to make judgments or decisions. Among the youngest players the responses tended to focus on purely physical characteristics (e.g., "He's older," or "He's bigger than me."). Older players tended to respond in terms of the special attributes or talents of the umpire (e.g., "He's good at it," or "He knows what an umpire should do."). The oldest players responded more in terms of special training or experience and mutually agreed upon roles (e.g., "He's gone to umpire school, so both teams agree to go by his decisions."). Again the responses changed focus from the person of the umpire to the umpire's acquired social status.

Even though the current results did parallel Damon's stages (1977), the authority conceptions of the athletes within this sample were not identical for parents and umpires. Although there was a significant relationship between obedience conceptions for parents and umpires, there was no relationship between legitimacy conceptions for parents and umpires. Thus, the players' reasons for obeying parents and umpires tended to be similar, whereas their explanations of the power of parents and umpires were unrelated. This inconsistency in legitimacy conceptions may occur because parents regularly inform children about parental legitimacy, whereas exposure to information about the legitimacy of sport officials is much less consistent.

Arguing With Authorities

There was also support for the hypothesis that players' reports that they would argue with parents and umpires would be related to age, cognitive development, and conceptions of obedience and legitimacy. Older players, and those with higher scores in cognitive development, were more likely to report that they would argue with authorities. Age was the most important correlate of arguing with parents. Older players were more likely to argue with parents, but when the effect of age was removed, their arguing was unrelated to cognitive sophistication. In contrast, arguing with umpires was significantly related to cognitive development when the influence of age was removed. Thus, in this sample, arguing with umpires was more related to maturity of understanding than was arguing with parents! Although the tendency to argue with an authority is probably determined by a number of factors (personality variables, situational variables, possible consequences, etc.), one interpretation of these results is that the tendency to argue increases as the perceived inviolability of authority diminishes with increasing age, cognitive sophistication, or both.

This interpretation is reinforced by the finding that those with more advanced conceptions of obedience and legitimacy were also more likely to report that they would argue with umpires and, in the case of legitimacy, were more likely to argue with parents. Players with more advanced conceptions of authority view the umpire's authority as situational. The authority is part of the temporary role, not a quality of the person. Players with more advanced conceptions of authority also recognize that the game, not the umpire's authority, is the most important feature of the competitive situation. Thus, the more cognitively sophisticated players may believe it is acceptable to dispute umpires because they appropriately view them as functionaries. In contrast, younger, less sophisticated players, who view obedience to the authority figures as the most important aspect of any situation, believe it is unacceptable to dispute the umpire. It is also possible that more cognitively advanced players believe they understand the rules and interpretations of the rules as well as the umpire, whereas the younger, less sophisticated players entertain no such notions.

If these interpretations are accurate, conflicts between players and umpires are, to some extent, an unavoidable consequence of the cognitive development of the players. If so, disputes with sports officials, within certain boundaries, could even be viewed as developmentally appropriate behavior. The arena of sport has long been depicted as a social laboratory where children learn social skills. One implication of this study is that educators can use sport settings to teach children how to handle conflict with authorities appropriately. Although such an effort would require significant changes in the expectations of many umpires and in the conflict behavior of all adults associated with youth sport, there could be long-term benefits for both officials and players.

The Role of Cognitive Development

The finding that authority conceptions are not related to level of cognitive development can be explained in two ways. First, the absence of significant findings may be a function of the questionable reliability of the IPDT-A. Reliabilities for four of the five subtests and for two of the four age groups were below acceptable standards. Assessment of the relationships between cognitive development scores and authority conceptions revealed that two of the four gammas were almost significant ($p<.05$), and it is possible that a more reliable measure would identify significant associations. A second explanation is that the absence of associations between cognitive development and authority conceptions represents a confirmation of Damon's (1977) position. Damon has argued that development of understanding for the physical world, the type of development measured by the IPDT-A, is independent of the development of social understanding, such as authority conceptions. Thus, the lack of a relationship between IPDT-A scores and authority conceptions is consistent with his position.

Conclusions

The results of this study suggest that the general course of development of authority conceptions for sport officials is similar, though not identical, to the course of development of parental authority conceptions that Damon (1977) described. There was also support for the hypothesis that age, cognitive development, and sophistication of authority conceptions are related to the tendency of players to dispute umpires' and parents' decisions.

Though there was support for a number of the hypotheses of this study, readers should keep in mind the limitations of the method and setting. First, the internal consistency of the IPDT-A, although adequate across the entire sample, was limited in two of the age groups and for most of the subscales. A more reliable measure of general cognitive development would be very useful in future studies. Second, all the athletes were male, and it is possible that there are gender differences in the development of the sport authority conceptions. Further, because the participants were necessarily volunteers, it is likely that the sample is not representative of all athletes. Similarly, the participants were all baseball players, and it is not at all certain that athletes from different sports develop sport authority conceptions in the same manner. Finally, athletes from three of the four age groups competed in the same league. The quality of officiating and the nature of athlete/official relationships can vary dramatically from league to league, and this type of variability can easily influence the development of authority conceptions. Thus, although this study provides some tentative answers to questions about the development of sport authority conceptions, researchers need to examine the influence of these and other variables for a more complete understanding.

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Manuscript submitted: December 5, 1991
Revision received: May 24, 1992