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Self-report measures of psychosocial maturity and screening measures of achievement and intelligence (Wechsler Abbreviated Scale of Intelligence; WASI) were used to investigate the influence of psychosocial maturity on male juvenile offenders' comprehension and appreciation of the *Miranda* warning (Grisso's Instruments for Assessing Understanding and Appreciation of *Miranda* Rights; GUAM). A sample of 67 male juvenile offenders, placed in a short-term detention facility or juvenile boot camp facility, participated in the study. Demographic differences revealed that youths in short-term detention were approximately one year older than boot camp youths. The two groups did not differ in IQ or measures of psychosocial maturity. Detention youths had GUAM subtest scores that were slightly higher than, but comparable to, those of boot camp youths. Consistent with previous research, verbal IQ correlated positively with GUAM subtest scores and was a significant predictor of all four scores after controlling for setting and age in a series of hierarchical regressions. In addition, the psychosocial maturity factor of Responsibility was a significant predictor of two GUAM subtests (CMR and FRI), while the Temperance and Perspective factors were not.

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The Supreme Court fundamentally changed the nation's juvenile courts in two landmark cases in the 1960s: *Kent v. United States*[1] and *In re Gault*.[2] In questioning the rehabilitative focus of juvenile courts, the majority opinions in *Kent* and *Gault* established children as "persons" under the Constitution by extending a few, yet fundamental, due process rights to youths. Representing the first case in a new era of juvenile justice jurisprudence, the *Kent* decision exemplified the legal relevance of developmental factors in noting a youth's sophistication and maturity as a factor to consider in the decision to waive juvenile offenders to adult court. The majority in *Gault* ruled that the Fourteenth Amendment's Due Process clause applies to children and extends certain rights to juveniles in adjudication hearings, including the right to notice of charges, the right to counsel, and the right to confront witnesses.

In subsequent cases, the Supreme Court has issued discrepant rulings regarding other constitutional protections and adolescents' abilities as legal decision-makers. For example, the Court declined to grant procedural safeguards related to the commitment of minors in *Parham v. J.R.*,[3] noting that parents possess "what a child lacks in maturity, experience, and capacity for judgment required for making life's difficult decisions" (Ref. 3, p 602). In *Schall v. Martin*,[4] the Court held that states could authorize detention of juveniles who present a serious risk of crime because juveniles "are always in some form of

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custody" (Ref. 4, p 253). These decisions stand in contrast to *Carey v. Population Services International*[5] and *Bellotti v. Baird*,[6] two cases that granted autonomy to adolescents and limited parental authority regarding access to contraception and abortion. In short, these cases illustrate that adolescents' rights under the Constitution and their capacities as legal decision-makers often are limited and balanced with other interests (e.g., parent and state).[7,8]

Cases that involve adolescents' rights in juvenile court post-*Kent* and -*Gault* have resulted in similarly discrepant rulings regarding autonomy and capacities to engage in legal decision-making. For example, juveniles do not have a constitutional right to trial by jury (see *McKeiver v. Pennsylvania*[9]). However, the Supreme Court ruled that juveniles do have sufficient capacity to make decisions regarding their Fifth Amendment right against self-incrimination (see *Fare v. Michael C.*[10]). Prior to *Fare*, the Supreme Court had recognized that age and experience warrant careful consideration regarding the "voluntariness" of statements made while in police custody (see *Haley v. Ohio*,[11] and *Gallegos v. Colorado*[12]). Yet, *Fare* remains the controlling case involving juvenile waivers of rights against self-incrimination.

In *Fare*, the Supreme Court held that a juvenile's request to speak with his probation officer did not constitute a *per se* invocation of his Fifth Amendment rights. The Court affirmed that the judicial test used to determine the adequacy of juvenile waivers was the discretionary "totality of circumstances" test. In adopting the adult standard, the Court noted that the test allowed judicial review of "the juvenile's age, experience, education, background, and intelligence, and whether he has the capacity to understand the warnings given him, the nature of his Fifth Amendment rights, and the consequences of waiving those rights" (Ref. 10, p 725). Specifically referencing the youth's age, history of police contact, and history of detention and probation, the majority held that under the totality of circumstances test, the youth knowingly and intelligently waived his right to counsel. Despite the ruling's acknowledgment of an adolescent's capacities, commentators have argued that courts take a very conservative approach when applying the test outlined in *Fare*, often allowing confessions of very young offenders with limited cognitive capacities.[13] Feld[13] cogently argued that states fail to recognize adequately the limited maturity of juveniles, while simultaneously limiting the full range of adult criminal procedural safeguards.

Empirical Context

Youths' decision-making capacities have been investigated in several legal contexts, including competency to consent to treatment,[14–16] competency to stand trial,[17–20] and comprehension and understanding of the *Miranda* warning.[21,22] The literature on competency to consent to treatment generally has shown that a large number of adolescents are not competent to consent to their admissions, particularly when competency is linked to understanding their mental illnesses and need for inpatient treatment.[14] In other studies, reading level, age, and Wechsler Intelligence Scale for Children-Revised (WISC-R) vocabulary subtest raw scores demonstrated significant positive associations with performance on competency to consent to treatment scales.[15,16]

Adolescent capacities as legal decision-makers have been thoroughly investigated in the legal context of competency to stand trial.[17–20] In perhaps the largest investigation to date, Grisso *et al.*[23] compared the performance of detained and community youths to the performance of detained and community young adults (18–24-year-olds) on competency abilities of understanding, reasoning, and appreciation using the MacArthur Competence Assessment Tool-Criminal Adjudication (MacCAT-CA).[24] Controlling for IQ and socioeconomic status, the researchers found a significant age effect on all three competence-related abilities. In general, youths 13 years old and younger performed significantly worse on all three competence-related abilities than did older youths and young adults. A similar pattern was found when performance was classified according to levels of impairment (no, mild, or significant impairment). Thirty percent of young adolescents (11–13-year-olds) and 19 percent of 14- to 15-year-olds were classified as having significant impairment on one or more MacCAT-CA scales. These results varied little by gender, ethnicity, legal status (detained versus community), self-reported mental health problems, and previous experience with the justice system. However, estimated IQ demonstrated predictable associations with competence-related impairment. Examined together with age, more than 50 percent of the 11- to 13-year-old youths with estimated IQs between 60 and 74 were classified as having signifi-

cant impairment on one or both MacCAT-CA scales (Responsibility and Understanding).

Empirical studies investigating juveniles' comprehension of the *Miranda* warning indicate that they tend not to understand the warnings, which has significant implications for a "knowing and intelligent" waiver of such rights under the totality of circumstances test outlined in *Fare*.[21,22] In the validation research for Grisso's Instruments for Assessing Understanding and Appreciation of Miranda Rights (GUAM),[25,26] juveniles younger than 15 demonstrated significantly poorer performance on the GUAM subtests than did older adolescents and adults. The existing research using the GUAM has focused almost exclusively on age and intelligence as factors that affect comprehension and understanding of *Miranda*.[27] Grisso found that the three comprehension measures (Comprehension of Miranda Rights (CMR), Comprehension of Miranda Rights Recognition (CMR-R), and Comprehension of Miranda Vocabulary (CMV)) related significantly to age and IQ ($r = 0.19–0.34$ and 0.45–0.59, respectively).[28] Correlations with the Function of Rights in Interrogation (FRI) were not reported in the test manual. An examination of average FRI scores among adolescents indicated an age effect, in that younger juveniles (10- and 11-year-olds) performed on average four points lower on the total FRI (mean = 20.25) compared with 16-year-old youths (mean = 24.36). Adolescent performance was consistently lower on the FRI compared with 17- to 19-year-old adult offenders (mean = 25.70) and adult nonoffenders (mean = 25.00).[28] To date, there has been no investigation of the GUAM's psychometric properties with juvenile offenders, independent of the GUAM validation studies.

Despite advances in understanding characteristics that affect the legal decision-making of adolescents, as a psycholegal construct, maturity continues to defy operationalization.[29–31] Researchers have investigated maturity through various methods across different juvenile court contexts. For example, Salekin and colleagues[30,31] utilized prototypical analysis to investigate the core features of waiver to adult court criteria and found that the element of sophistication and maturity was reflected by two dimensions: emotional/intellectual intelligence and level of criminal sophistication.

Grisso *et al.*[23] investigated age-related differences in maturity of judgment about choices juveniles make during the course of juvenile court adjudication. As part of the competency study, youths responded to questions about three vignettes (police interrogation, consultation with defense attorney, and decision regarding a plea bargain) to derive indices reflecting three psychosocial factors (risk appraisal, future orientation, and resistance to peer influence). Similar to their competence-related abilities, the 11- to 13-year-old age group performed significantly lower than other age groups on risk appraisal and reported fewer long-range consequences than other age groups. Youths aged 15 and younger were more likely to make decisions that represented compliance with authority. The maturity findings did not differ significantly by gender, ethnicity, or socioeconomic status. The researchers concluded that psychosocial immaturity affects the legal decision-making of youths beyond competence-related abilities. Young adolescents were more likely to comply with authority, less likely to recognize the risks associated with legal choices, and less likely to consider the long-term consequences of such choices.

In a series of review articles and empirical investigations, researchers have examined the relevance of maturity from a developmental perspective.[29,32–35] Cauffman and Steinberg[35] define maturity of judgment as "the complexity and sophistication of the process of individual decision-making as it is affected by a range of cognitive, emotional, and social factors" (Ref. 35, p 743). The researchers have proposed that maturity of judgment involves three related psychosocial factors: Responsibility refers to individual characteristics such as self-reliance, identity, and autonomy; Perspective refers to the related abilities of examining short-term and long-term consequences as well as placing individual decisions into a broader context; and Temperance refers to the ability to modulate impulsive thoughts and behavior prior to taking action. Recently, Cauffman and Steinberg[35] investigated the utility of these three psychosocial factors on maturity of judgment in adolescents' willingness to engage in antisocial behavior. The researchers found that level of psychosocial maturity significantly predicted antisocial decision-making within five different age groups (ranging from eighth graders to young adults).

The purpose of the current study was to investigate the association among psychosocial maturity and performance on a measure designed to evaluate understanding and comprehension of the *Miranda*

warning. Previous research has outlined clearly that age and intelligence demonstrate significant and predictable associations with legally relevant capacities. To date, research has not examined the relative association among cognitive factors and developmental maturity in legal decision-making by juveniles. Using the Cauffman and Steinberg[35] model of psychosocial maturity, we investigated age, cognitive capacity, and maturity as predictors of adolescents' abilities in a specific legal context—the comprehension and understanding of the *Miranda* warning. Given the lack of independent investigation of the GUAM, the current study also examined the measure's psychometric properties and compared youths' performance to that on the validation studies.

Method

Participants

Participants were a convenience sample of 85 male and female adolescents either detained in a juvenile detention center (63.5%) or attending a boot camp facility (36.5%) in southeast Texas. The juvenile detention center provides short-term secure care for male and female juveniles either charged with a crime or adjudicated delinquent and awaiting disposition. The boot camp offers education integrated with basic military concepts and physical training as an alternative to placement in a juvenile detention facility, as a requirement of probation stipulations, or after being suspended and/or expelled from their own school for committing serious offenses or serious, persistent misconduct.

The sample ranged in age from 11 to 17 years (mean ± SD, 14.82 ± 1.47). Attempts were made to collect descriptive information (e.g., race, mental health diagnosis, and criminal history) about the sample from official sources; however, these data were not available at the data collection sites and were not accessible to the investigators through other means. An initial goal of the project was to collect equal samples of boy and girls. However, data were available from 67 boys and from only 18 girls.

Measures

Wechsler Abbreviated Scale of Intelligence

The WASI[36] is a four-subtest measure of general cognitive functioning modeled after the Wechsler Adult Intelligence Scale. The WASI provides estimates of Verbal (VIQ), Performance (PIQ), and Full-Scale (FSIQ) IQs. Data reported in the WASI manual indicated good internal consistency for the overall child (ages 6–16 years) sample ($\alpha = .92–.97$). Test-retest reliability estimates ranged from .88 to .93 (average 31-day test interval) for the three IQ scores. The WASI IQ estimates correlated highly with the WISC-III Verbal IQ (.82), Performance IQ (.76), and Full-Scale IQ (.87). Validity testing with known group comparisons indicates that the WASI is a reliable and accurate screening measure of general intellectual functioning.

Wide Range Achievement Test-3

The WRAT-3[37] provides grade equivalency levels in three achievement areas: Reading, Spelling, and Math. The Reading subtest was used to determine the minimum grade level (Grade 3) needed to complete the self-report measures used in the study. Data reported in the WRAT-3 manual indicate high internal consistency ($\alpha = .91$) and test-retest reliability ($r = 0.98$ with an average 37.4-day test-retest interval) for the Reading subtest, as well as moderate to high correlations ($r = 0.55–0.71$) with the Verbal, Performance, and Full Scale IQs of the WISC-III.

Grisso's Instruments for Understanding and Appreciation of Miranda *Rights*

The GUAM[28] consists of four separate but related measures. Three of these measures assess aspects of the examinee's comprehension of the *Miranda* warning by having the examinee provide paraphrased explanation of the *Miranda* statements (CMR), testing the examinee's ability to recognize the underlying concepts stated in different words (CMR-R), and assessing the ability to define key words in the warnings (CMV). The fourth measure, the FRI, uses three vignettes to assess whether an examinee can grasp the import of the *Miranda* warnings and whether he or she can apply his or her knowledge in three decision-making contexts: nature of interrogation (NI), right to counsel (RC), and the right against self-incrimination (RS).

To date, only the instrument's author has investigated the psychometric properties of the GUAM. Strong correlations have been reported for inter-rater reliability across the subtests (range = 0.92–0.98). Significant and positive correlations were obtained between each subtest and age ($r = 0.19–0.34$) and intellectual ability ($r = 0.43–0.59$). Internal consistency for the measures was rather poor in the current sample (α for the CMR, CMV, and FRI = .44, .66,

and .41, respectively). A subset ($n = 25$) of the GUAM protocols was scored by two independent raters trained in the administration and scoring of the measures. Intraclass correlation coefficients for the CMR, CMV, and FRI scales were .86, .69, and .71, respectively, indicating adequate inter-rater reliability for the current sample.

Measures of Psychosocial Maturity

All youth were administered a series of self-report measures chosen specifically to allow measurement of the psychosocial maturity index (PMI) as conceptualized by Cauffman and Steinberg.[35] For some instruments, only the subscales required to construct the PMI were examined in the current sample. A thorough description of each instrument and the rationale associated with their selection is provided in Cauffman and Steinberg's original article.[35] Briefly, the PMI was calculated by averaging the standardized scores for the three elements: Responsibility (as measured by the PSMI); Perspective (as measured by the average of standardized scores on the CFC and the Consideration of Others subscale from the Weinberger Adjustment Inventory (WAI)); and Temperance (as measured by the aggregate of the Impulse Control and Suppression of Aggression subscales on the WAI).

The Consideration of Future Consequences Scale

The CFC[38] is a 12-item questionnaire that assesses the extent to which individuals construct the future by considering the immediate versus distant consequences of potential behaviors and allow such perceived outcomes to influence their actions. Participants respond on a five-point Likert-type scale (1, extremely characteristic; to 5, extremely uncharacteristic). Low scores are associated with placing a greater emphasis on immediate needs and concerns, whereas high CFC scores are associated with considering distant goals and consequences. Adequate internal consistency of the CFC Scale ($\alpha = .80–.86$) and test-retest reliability ($r = 0.72$ and 0.76) has been demonstrated.[38,39] A simplified version, adopted by Cauffman and Steinberg,[35] was used in the current study. Internal consistency for this version of the CFC was poor ($\alpha = .39$).

The Psychosocial Maturity Inventory

The PSMI Form D[40] is a 30-item self-report inventory assessing various dimensions of personal responsibility on a four-point Likert scale (1, strongly agree; 4, strongly disagree). Scores are summed to yield individual subscale and overall scale scores, with higher scores reflecting more responsible behavior. The validity and psychometric properties of this measure have been well established.[35] The current sample yielded $\alpha = .91$ for the PSMI, indicating a high level of internal consistency.

The Weinberger Adjustment Inventory

The WAI[41] is a self-report measure developed to assess self-restraint and emotional distress. Examinees respond to items using a five-point Likert-type scale (1, almost never; 5, almost always). The WAI comprises two superordinate dimensions: Subjective Experience of Distress and Self-Restraint. The Self-Restraint dimension is defined by four scales. Three of the Self-Restraint scales were utilized in calculating the psychosocial maturity index used in the current study (Impulse Control, Suppression of Aggression, and Consideration of Others) consistent with the original conceptualization of Cauffman and Steinberg.[35] The α coefficients for the Self-Restraint scales ranged from .64 to .79 in the validation research.[42] In a sample of early adolescents, the Self-Restraint scale had an α coefficient of .91 and a test-retest reliability of 0.76 (seven-month test-retest interval).[43] Concurrent and predictive validities for the WAI have been established via several cross-sectional and longitudinal studies of older children and adults.[44–47] The α levels in the current sample were as follows: Consideration of Others (.73), Impulse Control (.67), and Suppression of Aggression (.86).

Procedure

Parental Consent and Youth Assent

All procedures utilized in the study were developed in collaboration with the local juvenile justice administration and approved by the Sam Houston State University Institutional Review Board. The period of data collection extended from 2000 to 2002. The parent or legal guardian of each participant provided consent at the detention hearing or during the boot camp facility intake process. In addition, each youth provided assent at the time of data collection. Graduate or advanced undergraduate students trained in the administration of the measures tested all participants at the juvenile detention center or boot camp facility.

Administration of Psychosocial Maturity Measures

Following the assent procedure, all participants were administered the WRAT-3 to determine that each participant had the requisite reading level to complete the self-report measures. Participants with WRAT-3 reading scores of at least third-grade level completed a series of self-report measures that included the CFC, the PSMI, and the WAI. Data collectors administered these measures verbally to two participants whose reading scores were below the third-grade level.

Administration of Cognitive and Miranda *Measures*

All participants were administered the WASI to screen for intellectual functioning and were interviewed using the GUAM to evaluate their comprehension and understanding of the *Miranda* warning. Self-report measures, as well as the WASI and the GUAM, were counterbalanced to minimize order effects. However, because these instruments were administered as part of a larger data collection project, we were unable to analyze the results for potential order effects.

Results

Data Screening and Sample Demographics

Data first were examined for differences in the dependent variables by gender and across settings (detention versus boot camp). However, too few female participants were obtained to test for average differences across these variables. In addition, examination of bivariate correlations split by gender revealed differing patterns of associations among the measures of psychosocial maturity, intellectual functioning, and understanding of *Miranda* in the male and female youths. Because there were so few girls ($n = 18$), they were excluded from further analyses rather than being analyzed separately. The remaining sample consisted of 67 male adolescents ranging in age from 11 to 17 years (mean ± SD, 14.99 ± 1.48). Approximately 70 percent of the participants were housed at a detention center, and the remaining 30 percent were enrolled in the boot camp facility at the time of data collection. Examination of the dependent variables across the two settings revealed several significant differences between settings (Table 1). Detained juveniles (mean age ± SD, 15.28 ± 1.23 years) were approximately one year older than those enrolled in the boot camp facility (mean age ± SD, 14.30 ± 1.81 years). These adolescents also were somewhat more knowledgeable about their *Miranda* rights, as evidenced by their significantly higher scores on two of the four GUAM subscales (the CMR and the CMV) and a trend toward significantly higher scores on a third (the FRI).

Table 1 Demographics, Intellectual Functioning, Psychosocial Maturity, and GUAM Scores by Setting

	Juvenile Detention ($n = 47$)	Boot Camp Facility ($n = 20$)	t	p
Age (years)	15.28 (1.23)	14.30 (1.81)	−2.21*	.04
WASI				
VIQ	87.79 (13.34)	84.16 (14.56)	−0.98	.33
PIQ	93.74 (9.99)	90.37 (14.57)	−0.81	.42
FSIQ	89.79 (11.15)	86.05 (14.01)	−1.13	.26
PMI	$z = 0.061$ (0.75)	$z = -0.13$ (0.57)	−1.01	.32
RESP	$z = 0.057$ (0.99)	$z = -0.22$ (0.76)	−1.12	.27
PERSP	$z = 0.077$ (0.93)	$z = -0.11$ (1.00)	−0.75	.46
TEMP	$z = 0.050$ (0.97)	$z = -0.047$ (0.91)	−0.38	.70
GUAM				
CMR	6.64 (1.42)	5.45 (2.24)	−2.20*	.04
CMR-R	9.04 (1.73)	8.35 (2.28)	−1.36	.18
CMV	8.55 (2.04)	6.60 (3.69)	−2.23*	.04
FRI	23.77 (3.31)	21.95 (3.69)	−1.96	.06

RESP, Responsibility; PERSP, Perspective; TEMP, Temperance. Remaining abbreviations are defined in the text.
* $p < .05$.

Maturity, Intelligence, and Understanding of Miranda

Correlations among measures of psychosocial maturity, intellectual functioning, and understanding of *Miranda* are presented in Table 2. Measures of intellectual functioning demonstrated negligible associations with the psychosocial maturity index (PMI). Among the maturity measures, only the WASI Verbal IQ was related to the Responsibility factor ($r(66) = 9.25, p < .05$). The WASI Full-Scale IQ was significantly related to all four of the GUAM measures ($r = 0.35–0.52$), suggesting that participants with higher cognitive functioning possess a greater understanding of *Miranda* rights than those with lower cognitive functioning. However, the WASI Verbal IQ largely accounted for the association between intellectual functioning and GUAM scores ($r = 0.44–0.60$). Given the pattern of association with the GUAM, the WASI Verbal IQ was included in subsequent regression analyses as the estimate of cognitive functioning.

Two measures of adolescents' understanding of legal rights (CMR-R and FRI) were related to the PMI, with correlations of 0.24 and 0.32, respectively. However, further examination of the data re-

Table 2 Intercorrelations Among Age, IQ, Psychosocial Maturity, and GUAM Measures

	Age	VIQ	PIQ	FSIQ	RESP	PERSP	TEMP	PMI	CMR	CMR-R	CMV	FRI
Age	—											
VIQ	.04	—										
PIQ	−.04	.54**	—									
FSIQ	.01	.90**	.83**	—								
RESP	.26*	.25*	−.00	.17	—							
PERSP	.12	−.06	−.17	−.11	.28*	—						
TEMP	−.02	−.06	−.14	−.11	.46**	.25*	—					
PMI	.16	−.06	−.14	−.02	.78**	.69**	.77**	—				
CMR	.37**	.56**	.25*	.47**	.40**	−.01	.08	.21	—			
CMR-R	.28*	.44**	.13	.35**	.27*	.12	.15	.24*	.43**	—		
CMV	.47**	.60**	.26*	.52**	.34**	−.10	−.06	.08	.65**	.40**	—	
FRI	.30*	.48**	.12	.38**	.47**	.13	.12	.32**	.43**	.42**	.61**	—

RESP, Responsibility; PERSP, Perspective; TEMP, Temperance. Remaining abbreviations are defined in the text.
* $p < .05$; ** $p < .01$.

vealed that these associations were accounted for by one particular element of psychosocial maturity. The Responsibility factor evidenced significant positive correlations ($r = 0.27–0.47$) with all GUAM instrument scores. For this reason, only the Responsibility component was included in subsequent regression analyses.

Regression Analyses

Prior to regression analyses, data were screened for detection of outliers and violations of assumptions. Examination of Mahalanobis and Cook's distances, normality plots, standardized residual plots, and colinearity and tolerance statistics were within acceptable ranges for all dependent variables. A series of hierarchical regression analyses was conducted to determine whether psychosocial maturity yielded incremental validity in predicting the various components of adolescents' understanding of legal rights beyond age and intellectual ability. Owing to the differences on the GUAM measures across settings (detention versus boot camp), this variable was dummy-coded and entered on Block 1 in all analyses to control for potential differences across settings. For all analyses, age was entered on Block 2, Verbal IQ on Block 3, and Responsibility on Block 4, to examine the predictive utility of Responsibility beyond that of known variables of influence. For the three comprehension GUAM measures this combination of predictors resulted in statistically significant models: CMR, $R^2 = 0.52$, $F(4, 61) = 16.45$, $p < .001$; CMR-R, $R^2 = 0.26$, $F(4, 61) = 5.44$, $p = .001$; CMV, $R^2 = 0.58$, $F(4, 61) = 20.84$, $p < .001$ (Table 3). However, contrary to expectations, Responsibility added incremental validity in predicting only the CMR, $\Delta R^2(1, 61) = 0.043$, $p = .024$. Subsequent analyses were run with the interaction term entered on the final block (to examine moderator effects) as well as with the variables entered in reverse order, with no appreciable differences in results.

Unlike the comprehension subtests, the FRI assesses a more complex decision-making ability that involves adolescents' context-specific appreciation of the *Miranda* warning. Using the same method and initial order of variable entry, the combination of predictors yielded a statistically significant model ($R^2 = 0.39$, $F(4, 60) = 9.52$, $p < .001$), with Responsibility again emerging as a significant predictor over setting, age, and intellectual capacity ($\Delta R^2(1, 60) = 0.077$, $p = .008$; Table 4). The FRI is divided into three separate subscales (Nature of Interrogation

Table 3 Summary of Hierarchical Regression Models for GUAM Comprehension Measures

	Beta	SE	β	*t*	*p*	Partial *r*	Part *r*
CMR							
Setting	.72	.36	.19	1.98	.05	.25	.18
Age	.30	.11	.25	2.60	.01	.32	.23
IQ	.01	.01	.48	5.15	.00	.55	.46
Responsibility	.42	.18	.22	2.32	.02	.29	.21
CMR-R							
Setting	.01	.49	.02	0.20	.84	.03	.02
Age	.29	.15	.22	1.88	.07	.23	.21
IQ	.01	.02	.40	3.53	.00	.41	.39
Responsibility	.19	.24	.09	.77	.44	.10	.09
CMV							
Setting	.83	.54	.14	1.55	.13	.20	.13
Age	.71	.17	.38	4.23	.00	.48	.35
IQ	.11	.02	.54	6.29	.00	.63	.52
Responsibility	.27	.27	.09	1.02	.31	.13	.09

Values listed are those obtained in the final step of the model. For Setting, higher scores are associated with juveniles in detention. Abbreviations are defined in the text.

Table 4 Summary of Hierarchical Regression Models for GUAM Function of Rights in Interrogation and Subscales

	Beta	SE	β	t	p	Partial r	Part r
FRI							
Setting	.59	.81	.08	.73	.47	.09	.07
Age	.40	.25	.18	1.62	.11	.21	.16
IQ	.01	.03	.39	3.69	.00	.43	.37
Responsibility	1.11	.40	.30	2.76	.01	.34	.28
RC							
Setting	.44	.36	.14	1.24	.22	.16	.13
Age	.31	.11	.31	2.82	.01	.34	.29
IQ	.00	.01	.15	1.35	.18	.17	.14
Responsibility	.51	.18	.32	2.90	.01	.35	.30
RS							
Setting	.13	.61	.02	.21	.84	.03	.02
Age	.01	.19	.05	.44	.67	.06	.05
IQ	.01	.02	.37	3.16	.00	.38	.35
Responsibility	.58	.30	.23	1.93	.06	.24	.22

Data are those obtained in the final step of the model. For Setting, higher scores are associated with juveniles in detention. Abbreviations are defined in the text.

(NI), Right to Counsel (RC), and Right to Silence (RS)). Given that Responsibility served as the strongest predictor on the overall FRI performance, we wanted to examine its impact on the individual components of the FRI. This analysis revealed differing patterns of results with its three subscales. Notably, data screening procedures revealed a significant negative skew on the NI subscale. Reflection and logarithmic transformation of this variable were attempted; however, a significant negative skew remained that violated normality. A closer look at the individual data revealed too little variance, as most participants obtained close to the maximum score on this particular subtest. For this reason, this variable was dropped from further analyses. For the remaining subscales of the FRI, Responsibility again demonstrated the ability to predict appreciation of *Miranda* over setting, age, and intelligence: RC, $\Delta R^2(1,60) = 0.090$, $p = .005$; RS, $\Delta R^2(1, 60) = 0.047$, $p = .058$. For the RC subscale, both age and Responsibility emerged as strong predictors ($\beta = .31$ and .32, respectively). Intelligence ($\beta = .37$), however, was most predictive for the RS subscale, whereas Responsibility was a more moderate predictor that only approached significance ($\beta = .23$; Table 4). As with the comprehension subtests, additional analyses with the interaction term entered on the final block or with the variables entered in reverse order resulted in no appreciable differences.

Discussion

Changes in the juvenile justice system have increased empirical attention toward a better understanding of adolescents' capacities as legal decision-makers. This interest is due in part to Supreme Court decisions acknowledging the relevance of cognitive and developmental factors in juvenile court proceedings. The current project drew on two related lines of research—studies examining age and intellectual capacity, and the growing maturity research—to investigate the relative impact of these factors on juvenile offenders' decisions regarding the *Miranda* warning.

Review of Findings and Comparison to GUAM Validation

Consistent with previous research,[17–23] age and intelligence were associated with adolescents' understanding of the *Miranda* warning.[25–27] Older, more intelligent adolescents were more knowledgeable about the nature of legal proceedings and their rights within this context than their younger, less intelligent counterparts. Notably, intelligence typically was the strongest predictor, and adolescents who were particularly skilled verbally performed better on the GUAM measures. Conceptually, this was to be expected, as the GUAM measures require similar capacities measured by the Verbal IQ construct, such as verbal conceptualization, acquired knowledge, and concept formation.[48] With respect to maturity, only Responsibility was significant in predicting performance on any GUAM measure beyond age and intelligence alone. Across the comprehension measures, this effect was significant only on the CMR. Adolescents high on characteristics of self-reliance, internal control, and self-identity were better able to articulate the conceptual meaning of the *Miranda* warning in their own words.

The FRI, however, is a more complex task in that the adolescent must both understand the *Miranda* information and apply this knowledge in context-specific decisions through responses to vignettes. Consequently, we expected that maturity would have a greater impact on the FRI. Consistent with expectations, Responsibility had the greatest impact in predicting performance on the FRI and two of its three subcomponents (RC and RS) beyond age and intelligence alone. Thus, greater levels of Responsibility predicted more sophisticated decision-making in applying *Miranda* knowledge.

Compared with the validation study of Grisso et al.,[23] this investigation yielded similar validity estimates but poorer estimates of reliability. Estimates of internal consistency were poor in the current sample ($\alpha = .41–.66$). Surprisingly, the excellent inter-rater reliability reported by Grisso et al. ($r = 0.92–0.98$) was not replicated in our study (intraclass coefficients for the CMR, CMV and FRI scales of 0.86, 0.69. and 0.71, respectively). With respect to validity, our results were consistent with the GUAM validation.[25,26] Youths in the current sample achieved mean scores similar to those reported by Grisso[25,26] with scores for the respective groups of 6.26 and 6.04 on the CMR, 7.99 and 8.55 on the CMV, and 22.90 and 23.13 on the FRI. In addition, like the validation study, the current data yielded modest correlations between the GUAM measures, age ($r = .26–.44$), and intelligence ($r = .32–.50$).[25,26] In both studies, the CMR-R evidenced the lowest association with age and intelligence and the CMV evidenced the highest. In the current sample, all of the GUAM comprehension measures correlated more strongly with the FRI ($r = .42–.61$) compared with the validation data ($r = .28–.32$).[25,26] While the current sample produced lower reliability estimates, positive and consistent findings were demonstrated regarding the GUAM's construct and concurrent validity.

Implications Related to the Maturity Construct

The current results confirm that a combination of intellectual and psychosocial factors is important in understanding adolescents' decision-making regarding a *Miranda* waiver. However, we concur with Cauffman and Steinberg[35] that the role of psychosocial factors is not understood clearly, and that intelligence and psychosocial factors may interact differently in different decision-making contexts. For example, Cauffman and Steinberg found age-related effects in the prediction of antisocial decision-making; however, this effect was nullified by maturity. In the current study, the predictive effects of maturity, and more specifically, Responsibility, did not diminish the predictive effects of age and intelligence on the GUAM comprehension measures. However, maturity emerged as a strong predictor in the more abstract, context-specific decision-making tasks associated with the FRI. That we found support only for Responsibility is surprising considering that Cauffman and Steinberg[35] reported that this factor contributed weakly ($\beta = .07$) to the prediction of adolescents' willingness to engage in antisocial behavior compared with Temperance ($\beta = .35$) and Perspective ($\beta = .26$). It is consistent, however, with their earlier supposition that different psychosocial factors may relate to different types of decision-making.

We offer several possible explanations as to why Temperance and Perspective were unrelated to scores on the *Miranda* instruments. Pertaining to Temperance, it is plausible that impulse control and self-restraint may not be as relevant to decision-making within the context of the *Miranda* warning as it is within the context of general antisocial decision-making, as the immediate benefits to decisions are less tangible and possibly less influenced by impulsivity in the former situation. Second, *Miranda* decisions are made in the presence of an authority figure (i.e., police officers), a source of external restraint that is absent in the context of risk-taking or antisocial behavior, where self-restraint is more important.

A combination of sampling and measurement factors may account for the fact that Perspective was unrelated to scores on the *Miranda* instruments. For example, Cauffman and Steinberg[35] found that the steepest point in the development curve occurred between 16 and 19 years of age and that this development change was most pronounced for the Perspective and Temperance factors.[35] The mean age of the current sample (14.82 years) did not include the age range where the greatest variability on these two psychosocial factors may be found. It is possible that in a sample of older youths and young adults, Perspective and Temperance may play a greater role in predicting *Miranda* scores. In addition, it is possible that the current measures may not represent adequately the Perspective construct. The time perspective/future orientation element was measured by the modified CFC and had very poor internal consistency ($\alpha = .39$) in the current sample. The social perspective-taking element of Perspective was measured by the WAI Consideration of Others subscale and had much higher internal consistency ($\alpha = .73$) but was based on only five items. Thus, poor internal consistency and a small range of items may have compromised the predictive utility of the Perspective variable.

Limitations

There are several problems that may limit the utility of the present findings. First, the measurement factors just noted suggest that a better and more re-

liable representation of the maturity construct (and its elements) is needed, as well as refinement of the GUAM instrument's reliability (i.e., poor internal consistency and low inter-rater reliability on the FRI). Second, although a strength of our study was the use of a delinquent sample, data from a sufficiently large number of girls were not obtained. Thus, we were unable to investigate the potential differences in understanding and appreciation of the *Miranda* warning among girls of various ages as well as between girls and boys. Concerns about the generalizability of our results are attenuated somewhat in light of the lack of gender differences for psychosocial maturity and decision-making reported by other researchers.[23,35] Clearly, gender differences should be investigated in future studies.

Third, the current results are limited by the fact that certain important information (e.g., race, diagnosis, emotional functioning, and official criminal charges) was unknown or not provided to the investigators. Future studies should attend to these variables and to the ways in which they combine with maturity to influence adolescents' legal decision-making. In addition, pertaining to setting, the generalizability of our results should be restricted to juvenile detention centers and boot camp facilities similar to those in which the present data were collected. Finally, our results are limited by the absence of comparison groups. For example, comparison to recently arrested youths may have allowed empirical investigation of whether having experienced the adjudication process moderates comprehension of *Miranda* warnings. Past and current recent research suggests this to be unlikely.[21–23] For example, Grisso *et al.*[23] reported that performance of community and detained adolescents and young adults on the MacCAT-CA was not related to prior experience in the justice system. Other possibilities for comparison groups include community and correctional adult samples and a community youth sample. Given the differences observed between community and detained youths in IQ, with the IQs of detained youths typically one standard deviation below those of community youths, the predictive utility of IQ across samples warrants additional attention.[23]

Conclusions and Future Applications

The current study suggests that factors linked to maturity of judgment affect adolescent decision-making in the context of comprehending and understanding the *Miranda* warning and that different psychosocial factors may be associated with different decision-making contexts. Given the limitations noted herein, direct application of the current findings to the legal arena is premature. However, with further study, there are several areas in which maturity of judgment may be relevant to adolescents in a legal context. First, a police officer's "ritualistic recitation" of the *Miranda* warning to juveniles who lack the cognitive understanding or psychosocial abilities to exercise these rights does little to achieve the state interest of noncoercive police interrogations and a "knowing, intelligent, and voluntary" waiver (Ref. 13, p 115). Young, cognitively impaired, psychosocially immature youths may need special protections (e.g., an "interested adult" standard or tiered systems) and assistance from others when faced with decisions regarding waiver of rights.[49–51] In addition, the greatest impact the current findings may have is through education of juvenile court personnel and attorneys who work directly with youths in these contexts.[52] Effective counsel requires that the attorney explore a juvenile's comprehension of the consequences of legal decisions. Thus, it is important to expand attorneys' awareness regarding the effects of immaturity and of developmentally appropriate methods of communicating with youths about such decisions. Finally, the impact of maturity on adolescents' capacities in the current study complements previous research and provides growing support for its inclusion as one factor for judicial review under the totality of circumstances test set forth in *Fare*.[10] Such considerations are important, to ensure that adolescents' capacities as legal decision-makers support their exercising relevant constitutional protections and rights entitled by the judicial system.

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