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My Class Activities Instrument as Used in Saturday Enrichment Program Evaluation

Nielsen Pereira
Purdue University

Scott J. Peters
University of WisconsinW hitewater

Marcia Gentry
Purdue University

Instruments designed to evaluate the outcome and effect of classes and out-of-school programs for gifted and talented students are scarce, but necessary. In 2006, VanTassel-Baska called for more program evaluation studies "that provide evidence of program effectiveness and defensible results in serving the gifted as a population in school" (p. 339). Although VanTassel-Baska emphasized in-school programs, those programs conducted outside of the physical school and school day also are important. In the same report card on the state of research in gifted education, Robinson (2006) noted the need for more information on assessment tools used in gifted education. Gallagher (2006) stressed conducting responsible evaluation as a necessity in both general and gifted education. The need for program evaluation is also suggested in the National Association for Gifted Children's (NAGC, 2000) *Pre-K–Grade 12 Program Standards*.

Summary

My Class Activities (MCA) is an instrument that has been used for evaluation of university-based Saturday enrichment programs, but was originally normed using students in regular schools. A sample of MCA scores from 826 students in grades 3–8 from a Saturday enrichment program was used. Four different MCA models were evaluated: (a) the original MCA model containing interest, challenge, choice, and enjoyment; (b) a model including a second-order term connecting enjoyment and interest; (c) a three-factor model containing a combination of interest and enjoyment, challenge, and choice; and (d) the original MCA model after two items were removed. Results indicated that the original MCA four-factor structure provided a better fit when used with the Saturday enrichment sample than did the second-order and the three first-order factor models. However, the best solution regarding model fit was found using the original model, but with the removal of two poorly functioning items. This study highlighted the importance of evaluating an instrument whenever used with a different population than that on which it was originally normed. With two items deleted from the challenge scale, MCA is a potential tool for use in enrichment program evaluation that provides measures of four motivational dimensions often emphasized in programs for high-ability students.

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In an effort to create an instrument that could be used to assess students' perceptions of their classes, Gentry and Gable (2001a) developed My Class Activities (MCA), which measures students' perceptions of interest, challenge, choice, and enjoyment regarding their classroom activities. MCA was normed using a sample of students in grades 3–8 (Gentry & Gable, 2001a), which included students who had been identified for gifted programs. Although MCA has been used for 5 years as one of the evaluation instruments for Super Saturday, an enrichment program at Purdue University's Gifted Education Resource Institute (GERI), the instrument had not been specifically normed for that population, which could differ substantially from the original sample from an in-school setting.

Using MCA, an instrument that was developed for use in the general education setting, in Saturday enrichment programs could yield inaccurate results because the instrument was normed using a sample that might not reflect the characteristics of those students enrolled in out-of-school enrichment programs. Evaluating an instrument on a new population before using it to make decisions or valid conclusions about that population is important, because the inferences made based on scores are dependent on the sample being evaluated (Joint Committee on Testing Practices, 2005). Thus, we evaluated MCA, using a sample of students from Super Saturday to determine whether it is a viable tool for use in this setting and to determine the best model for the instrument when using it on this population of students.

Literature Review

My Class Activities

My Class Activities is an instrument designed to assess the frequency with which students perceive four motivational components (interest, challenge, choice, enjoyment) in their classes (Gentry & Gable, 2001a). Across the 31 items on MCA, Items 1 to 8 measure students' attitudes toward interest; Items 9 to 17 address challenge;

Items 18 to 24 measure students' perceptions of choice; and Items 25 to 31 measure enjoyment. Students respond to each of the 31 items using a 5-point frequency scale (1 = *never*, 2 = *seldom*, 3 = *sometimes*, 4 = *often*, 5 = *always*), and the final scores are obtained by averaging students' responses to items on each scale.

Development of MCA

Pilot Study. Gentry, Maxfield, and Gable (1998) assessed the construct validity of the MCA to determine if students perceived their regular classroom activities and their enrichment clusters (Renzulli, 1994) differently. Two different instruments, one that assessed students' perceptions of their regular classroom activities and the other of the enrichment clusters, were created. Both instruments had 40 items that varied only in the use of either *classroom* or *enrichment cluster* in the item stems. Content judges provided evidence of content validity for the five hypothesized factors (i.e., interest, enjoyment, challenge, choice, meaningfulness). However, exploratory factor analysis (EFA) revealed different factors for general classrooms (i.e., interest, challenge, choice, enjoyment) and for enrichment clusters (i.e., interest/enjoyment, choice, meaningfulness, challenge). MCA was then developed for use in general classrooms based on the EFA results from this pilot study (Gentry & Gable, 2001a) using the following operational definitions of the four scales:

- Interest: Reflects positive feelings/preference for certain topics, subject areas, or activities.
- Challenge: Engages the student and requires extra effort.
- Choice: Gives the student the right or power to select educational options and direct his or her own learning.
- Enjoyment: Provides the student with pleasure and satisfaction (Gentry & Gable, 2001a, p. 4).

Confirmatory Factor Analyses. MCA was normed using a national sample of 3,744 elementary and middle school students from 24 schools in 7 different states. Both the elementary and middle school samples included 51% males. The ethnic groups repre-

sented were Caucasians (elementary = 71%; middle school = 83%); African Americans (elementary = 13%; middle school = 5%); Asian Americans (elementary = 11%; middle school = 9%); and Hispanic Americans (elementary = 4%; middle school = 2%; Gentry & Gable, 2001b; Gentry, Rizza, & Gable, 2001). Alpha internal consistency estimates for the four dimensions ranged from .68 to .91 for the elementary sample (Gentry et al., 2001) and from .75 to .92 for the middle grades sample (Gentry & Gable, 2001b). Confirmatory factor analyses were used to investigate the validity of the scores for the normative sample, yielding goodness of fit (GFI) statistics for elementary and middle school students of .95 and .88, respectively. These indices and their associated Root Mean Square of Error Approximation (RMSEA) of .04 and .09 provided evidence supporting the hypothesized four factor model (Gentry & Gable, 2001a).

The Four Dimensions of MCA

The four dimensions of MCA (i.e., interest, choice, challenge, enjoyment) have long been integral components of gifted programs (Gentry & Gable, 2001a). The NAGC (2000) *Pre-K–Grade 12 Gifted Program Standards* refer to the dimensions measured in MCA in several different sections. For example, student interest should be considered with regard to identification. In addition, challenge is referenced as a major consideration for curriculum design. The same can be said for differentiated instruction, which emphasizes both challenging curriculum and considerations for student choice.

The dimensions measured and addressed by MCA (interest, challenge, choice and enjoyment) have all been cited as important in student achievement and motivation in the general and gifted education setting. Incorporating student interest in the classroom has long been an area of study and concern in the field of education (Dewey, 1913; James, 1890). Student interests are an especially important aspect of Saturday enrichment programs, because students choose classes in areas that pertain to their interests (Robinson, Shore, & Enersen, 2007). For out-of-

school gifted programs, student interest drives enrollment and successful programming.

Providing appropriate challenge is another key to successfully educating gifted students, as it is essential for optimal learning (Bloom, 1985). Authors of the U.S. Department of Education (1993) federal report, *National Excellence: A Case for Developing America's Talent*, pointed to the need for more challenging opportunities to learn. In gifted education, the idea of appropriate levels of challenge has been seminal to instructional strategies such as differentiated instruction (Tomlinson & Edison, 2003). The main idea behind providing appropriate levels of challenge to students is that such instruction is more inherently interesting and motivating, especially when the content area connects with a student's interest area (Alexander & Schnick, 2008). In a summary of research related to student underachievement, McCoach and Siegle (2008) noted that when students are not provided with instruction that is within their Zone of Proximal Development (Vygotsky, 1978), they are more likely to become disinterested in school, have low levels of self-motivation, and have low levels of self-efficacy in academic areas. The same authors noted several possible interventions to address underachievement, one of which involved an enrichment-based program focusing on students' interest areas in order to reverse underachievement. Challenge has also been a long-time component of accelerated learning strategies such as early entrance to kindergarten or college, grade advancement, grade acceleration, and talent search programs (Robinson et al., 2007). Providing appropriate levels of challenge is a hallmark of successful gifted education programming.

Considering student choice in instructional planning and programming is key to optimal learning experiences (Alexander & Schnick, 2008). The idea of students' ability to have some control over their own learning in the classroom is a critical component of Self-Determination Theory (Ryan & Deci, 2002), whereby students' intrinsic motivation is higher due to greater involvement of the students in their own instruction. The idea here is that students who are able to connect instruction to their interest areas and make some choices with regard to that instruction are more likely to

be engaged and produce greater learning outcomes. The importance of student choice in enrichment programs both in and out of school is evident because students select courses they find interesting. This is in contrast to the general education setting where there often exists a set curriculum (Gentry, 2006). Gentry, Gable, and Springer (2000) suggested that giving students choices is a simple, although powerful, modification that can be made to improve the educational environment of a classroom.

Enjoyment is strongly connected to the constructs of choice and interest. In fact, when the enrichment clusters were evaluated using MCA in the instrument's development, the constructs of interest and enjoyment were combined into a single scale (Gentry et al., 1998). Put simply, when students have some degree of choice in the classroom and are allowed to select some topics to fit their own interest, levels of student enjoyment are likely to be higher (Gentry & Gable, 2001b). Enjoyment of classroom activities has been suggested as vital for successful learning (Csikszentmihalyi, 1990; Renzulli, 1994).

Gifted and Talented Program Evaluation

The NAGC (2000) *Pre-K–Grade 12 Gifted Program Standards* include a section on program evaluation, defined as "the systematic study of the value and impact of services provided" (p. 5). The guiding principles of such evaluation include purposefulness, efficiency and economy, competence and ethics, and availability of results through written reports. Evaluators need to select instruments that provide evidence of reliability and validity and that are appropriate for the age group attending a program. These same standards also recommend that evaluations report on the strengths and weaknesses of a program that might influence program services but would also allow for program improvement. The MCA instrument can contribute to an overall program evaluation by indicating whether participating students perceive they are being challenged as suggested by the NAGC (2000) standards.

In 2004, VanTassel-Baska and Feng edited a volume on gifted and talented program evaluation. Although focusing primarily on

school-based programs, many of their recommendations hold true for out-of-school programs. Primarily, "the fundamental role of evaluation is to provide information that can be used to improve and advance the state of the art of gifted programs" (VanTassel-Baska, 2004, p. 23). Callahan's (2001) strategies for gifted education in the new millennium included committing to better evaluation of gifted programs including the development of assessment tools. Despite differences in out-of-school programs, those designed for high-ability students, whether focused on accelerated learning or enrichment, all have a need to evaluate student perceptions of the program, which can then be used to make program improvements.

Although Saturday enrichment programs in which students only meet six times are unlikely to have a major impact on in-school standardized tests, they do have the potential to involve students more deeply in their own learning (Olszewski-Kubilius, 2003) and can challenge students who are often left unchallenged in their home school setting (U.S. Department of Education, 1993). Olszewski-Kubilius and Lee (2004) concluded that parents perceived their children's participation in a Saturday enrichment program as having positive effects on academic talent development, including gains in knowledge, motivation, interest in their areas of study, and academic competence. Challenge and enjoyment were also perceived by parents as aspects of instruction in that Saturday enrichment program. Because no single measure will give a complete picture, Feng and VanTassel-Baska (2004) recommended multiple perspectives or triangulation of instruments and perspectives in order to best evaluate program outcomes. The MCA instrument, with its focus on students' perceptions of interest, challenge, choice, and enjoyment, can serve as one of these measures as information related to these constructs may not be captured in other measures or be addressed from the perspectives of the students in the program.

Previous Studies Using MCA

Previous studies using MCA have indicated that of the four dimensions measured, choice has been the lowest rated by stu-

dents regardless of age group, gender, ability group, or school type (Gentry & Gable, 2001a; Gentry, Gable, & Rizza, 2002; Gentry et al., 2000). Because the majority of these studies used gifted and nongifted student data from the general education setting, such findings could suggest that students do not often feel they have much choice or control of curriculum or pedagogy in their classrooms. This is consistent with Gentry (2006) who noted an increasing focus on test preparation and basic skills in the general education setting. In addition, Gentry and Gable (2001a) reported a large correlation between interest and enjoyment (r = 0.76) and moderate correlations ranging from .39 to .50 among the other scales. These correlations are expected due to the relationship among the affective constructs measured by the instrument. However, from the standpoint of measurement and instrumentation, large inter-factor correlations can indicate the need for a higher order factor or that two highly correlated factors may actually be measuring the same single factor (Brown, 2006).

Previous studies have also reported that MCA included some items that had low factor loadings and corresponding high residual values. Gentry and Gable (2001b) reported on the confirmatory analyses of MCA using a sample of middle school students and, although the instrument showed overall good fit, some of the items had relatively low factor loadings. Examples of items (see Table 2) with low factor loadings include Items 13, 16, 17, 19, which had factor loadings ranging from .32 to .48. Factor loadings for the elementary sample were reported in Gentry and Gable (2001a) and Items 13, 16, 17, and 19 had factor loadings ranging from .06 to .49. The removal of items with low loadings could result in a better fitting model that might also be more appropriate for out-of-school enrichment programs.

Saturday Enrichment

Saturday enrichment programs typically take place outside of the general education classroom and offer several potential benefits to gifted students. Children in out-of-school enrichment programs are exposed to advanced content in diverse subject areas

by highly qualified instructors, while being surrounded by like-ability peers in a learning environment where they feel safe to be themselves (Davis & Rimm, 2004; Olszewski-Kubilius, 2003). Special gifted programs have also been shown to provide additional affective gains in participants' self-esteem, self-efficacy, and academic motivation, which in turn can lead to success in school (Olszewski-Kubilius & Grant, 1996). Furthermore, with the implementation of No Child Left Behind (NCLB, 2001), many gifted students do not receive appropriate services to meet their learning needs in the regular classroom (Reis, 2007), making Saturday enrichment programs increasingly important.

Super Saturday is an enrichment program for children in grades pre-K to 8 that was created in 1979 at Purdue University. Super Saturday and similar enrichment programs provide services to high-ability learners. Feldhusen and Wyman (1980) reported on the design and implementation of Super Saturday and highlighted some of the benefits this type of programming can afford students. These benefits, which are related to different dimensions of MCA, include maximum achievement of basic skills and concepts and learning activities at an appropriate level and pace (challenge); development of self-awareness and acceptance of one's own capacities, interests, and needs (interest, challenge, choice); and development of independence (choice), self-direction, and discipline in learning (interest, choice; Feldhusen & Wyman, 1980). Super Saturday instructors range from veteran, licensed teachers with a background in gifted education to preservice teachers who are learning gifted education strategies. By engaging in Super Saturday and involving students in authentic experiences, preservice teachers have been shown to perceive an increase in their knowledge of the characteristics and needs of gifted children (Bangel, Enersen, Capobianco, & Moon, 2006). Thus, Super Saturday can contribute to the professional development of future teachers who will undoubtedly have gifted students in their general classrooms.

The Super Saturday program is evaluated using a variety of methods and measures. These different sources of information provide a thorough picture of the program and its effects on stu-

dents, parents, and teachers. MCA is used to evaluate students' perceptions of the program. MCA was chosen by the GERI administrators as one instrument to measure students' perceptions of their classes because the four dimensions have been shown in a variety of studies and reports to be important aspects of gifted education programming (Gentry & Gable, 2001a, 2001b; NAGC, 2000). Students also receive feedback from teachers through a student assessment form (Gifted Education Resource Institute, 2007a) that includes criteria such as critical and creative thinking, intellectual curiosity, persistence, independence, social relationships, and emotional expression. Teachers are evaluated with the Teacher Observation Form (Feldhusen & Hansen 1987, 1988) in its revised version (Peters & Gates, 2009), which measures different aspects of instruction, such as motivational techniques, pedagogy, interaction with students, emphasis on higher level thinking skills and creativity, and appropriate use of technology. Parents complete the Parent Program Evaluation Form (Gifted Education Resource Institute, n.d.), which includes items about procedures and activities, application and registration procedures, and others about how parents perceive their child's participation in the program (e.g., motivation, enjoyment, homework assignments, challenge). Together, these components provide a complete evaluation of the Super Saturday program. Because student outcomes and perceptions are important in such an evaluation, an instrument like MCA is useful in any similar program evaluation.

Because MCA has been used since 2004 internally as part of the evaluation process of Super Saturday, the purpose of this study was to analyze the factor structure of MCA using a sample of Super Saturday students to determine its value as an evaluation instrument for use in this (and potentially other) out-of-school enrichment programs. The following research questions guided our inquiry:

1. How do MCA data from a Saturday student enrichment program fit the original factor model from Gentry and Gable (2001a)?
2. How do alternative models affect overall model fit?

3. Which items should be removed to create a better fitting and/or more parsimonious model for use with students in similar enrichment programs?
4. Can the MCA, in its current or a revised form, be used as one component to evaluate enrichment programs?

Methods

Participants

One thousand sixty-five students who had participated in a Saturday enrichment program designed for high-ability students comprised the sample for this study. Data were collected over seven program sessions in a 4-year period. Students in the program typically attend local schools, but some commute up to 100 miles away. Participants represented a wide range of communities, including rural, suburban, and urban locations. Female students comprised 51% of the sample. Participants were in grades 3–8 when data were collected. Information on race and/or ethnicity of the participants was not available because that information is not requested on MCA. However, this information is available for the program. During the data collection years (2005–2008), the ethnicities of the students were 84.7% White, 0.3% Native American, 2.9% Multiracial, 3.0% Hispanic, 5.8% Asian, and 3.3% African American. Because the sample was robust, we used listwise deletion to eliminate cases in which all 31 MCA items were not completed. Deletion of incomplete cases was also conducted because they were distributed relatively equally across the different sessions. Table 1 presents the number of students who completed the MCA each semester and the numbers of deleted cases for each session compared with the total number of students.

Data Collection

Data collection took place at the end of each session, from the spring of 2005 through the fall of 2008, and included all ses-

Table 1

Respondents for Each Semester of Super Saturday

Semester	Respondents	Missing	% Missing	Total Used
Spring 2005	223	57	25%	166
Fall 2005	157	39	25%	118
Spring 2006	162	39	24%	123
Spring 2007	67	13	19%	54
Fall 2007	84	18	21%	66
Spring 2008	179	31	17%	148
Fall 2008	193	42	22%	151
Total	1065	239	22%	826

sions in which MCA was used for summative evaluation. Because MCA is administered as part of routine program evaluation, the Institutional Review Board deemed the study exempt; thus, consent forms were not collected. Course assistants administered the surveys on the final day of the enrichment program following an identical set of directions to ensure consistency in the administration of the survey. Students were not required to include their names on the form, and course instructors were only allowed to see evaluation summaries and not individual student responses. Students also completed demographic items concerning their grade and gender. Surveys were administered to students in the third- through eighth-grade classes offered each semester and, although this could contribute to the heterogeneity of the sample, it also means we have results from a diverse pool of enrichment classes.

Overall, Super Saturday courses represent a wide range of content areas from the STEM disciplines to liberal arts. Although teachers of these classes also represent a wide variety of backgrounds and levels of experience and qualification to teach enrichment classes, all teachers had at least some training on how to develop lesson plans for and meet the educational needs of high-ability students. Some of the students in our sample completed the MCA on more than one occasion if they took more than one class over the 4-year period of data collection. This was not seen as a problem because their MCA ratings reflected their

perceptions of the individual classes and not on their overall levels of interest, challenge, choice, and enjoyment regarding their educational experiences.

Data Analysis

We used MPlus software (Muthén & Muthén, 2007) to generate descriptive statistics and to perform confirmatory factor analyses. Traditional maximum likelihood (ML) estimation was used in the factor analyses. According to Finney and DiStefano (2006), maximum likelihood estimation can be used with ordinal data that have skewness less than two and kurtosis less than seven. Both were evaluated for the current sample before the analyses were conducted.

We tested the original MCA model from Gentry and Gable (2001a), the model that added a second-order factor above interest and enjoyment, and a model containing three first-order factors (interest and enjoyment combined) with the Saturday enrichment program sample. For the second-order factor analyses, we used methods described in Brown (2006). The three main steps to confirmatory higher order factor analysis are: (1) performing confirmatory factor analyses using the same factor structure previously used and checking that we obtain a good-fitting first-order factor structure; (2) investigating the correlation patterns among factors in the first-order factor analysis solution; and (3) fitting the higher order factor model (Brown, 2006). We performed analyses to evaluate model fit for the three-factor model and also for a model excluding some of the MCA items. Our criteria for identifying items that could be removed from MCA were poor factor loadings (less than .4; Thompson, 2004), high residual values when compared to other items, and/or high modification indices that if made would result in a statistically significant decrease in chi-square value for the model. This was performed to evaluate whether certain items were not appropriate for Saturday enrichment programs or simply did not function well with the new sample. However, Brown (2006) recommended that theory be involved in the decision of whether or not to revise an instrument

at the item or factor level. To simply make modifications based on the results of the CFA may create a better fitting model, but any modifications must conceptually relate to the underlying theory. Because of this, all items were reviewed from the perspective of the underlying theory before we considered removing them.

In order to evaluate model fit, we examined the chi-square values, GFI, RMSEA values, and Comparative Fit Index values (CFI). GFI and CFI should be as close to 1.0 as possible and RMSEA values should be less than 0.05 for good fit and never greater than .10 (Hu & Bentler, 1999). Brown (2006) suggested using the chi-square, which is an absolute fit index, at least one parsimony correction (e.g., RMSEA), and one comparative fit (e.g., CFI) index. However, because of the large sample size, we expected the chi-square to be significant regardless of model fit.

Results

Table 2 includes means, standard deviations, skewness values, and kurtosis values for the 31 MCA items. Descriptive values indicate that the variables were moderately non-normal with skewness values of two or less and all kurtosis values smaller than seven (Finney & DiStefano, 2006). Means for the MCA normative sample ranged from 3.05 (choice) to 3.64 (enjoyment) and means for our sample ranged from 3.41 (choice) to 4.46 (enjoyment), which indicated that students in this Saturday enrichment sample had higher means than those from the normative sample for all MCA dimensions.

Alpha internal consistency estimates for the four subscales ranged from .77 to .88. Correlations between the four factors are shown in Table 3. The large correlations between some of the factors for the Saturday enrichment sample may suggest that an alternative model may fit the data better than the original model.

Model Fit

Gentry and Gable (2001) Model. In order to answer the first research question, we evaluated how the original four-factor model (Gentry

Table 2

Descriptive Statistics for the MCA Items

Item	Mean	*SD*	Skewness	Kurtosis
1. What I do in my class fits my interests.	4.31	.751	-.807	.101
2. I have an opportunity to work on things in my class that interest me.	4.26	.823	-.972	.553
3. What I do in my class gives me interesting and new ideas.	4.15	.918	-.935	.434
4. I study interesting topics in my class.	4.22	.921	-1.086	.689
5. The teacher involves me in interesting learning activities.	4.39	.803	-1.291	1.367
6. What I learn in my class is interesting to me.	4.38	.806	-1.290	1.460
7. What I do in my class is interesting to me.	4.41	.800	-1.418	1.887
8. My class helped me explore my interests.	4.13	.996	-1.174	1.056
9. The activities I do in my class are challenging.	3.45	1.170	-.368	-.588
10. I have to think to solve problems in my class.	3.84	1.086	-.744	-.065
11. I use challenging materials and books in my class.	2.90	1.297	.002	-1.043
12. I challenge myself by trying new things.	3.96	1.020	-.895	.406
13. My work can make a difference.	3.86	1.047	-.754	.032
14. I find the work in this class demanding.	2.88	1.308	.066	-1.072
15. I am challenged to do my best in class.	4.11	1.066	-1.119	.544
16. What we do in class fits my abilities.	4.18	.912	-1.056	.854
17. This class is difficult.	2.66	1.222	.271	-.791
18. I can choose to work in a group.	3.35	1.369	-.349	-1.048
19. I can choose to work alone.	3.44	1.382	-.445	-1.012
20. When we work together, I can choose my own partners.	3.41	1.459	-.407	-1.180
21. I can choose my own projects.	3.49	1.469	-.502	-1.144
22. When there are many jobs, I can choose the ones that suit me.	3.65	1.316	-.683	-.668
23. I can choose materials to work with in the class.	3.54	1.300	-.486	-.848
24. I can choose an audience for my product.	2.98	1.404	.035	-1.214
25. I look forward to my class.	4.44	.872	-1.546	1.829
26. I have fun in my class.	4.58	.777	-2.006	4.582
27. The teacher makes learning fun.	4.5	.820	-1.728	2.614
28. I like what I do in my class.	4.46	.828	-1.585	2.239
29. I like working in my class.	4.43	.823	-1.437	1.712
30. The activities I do in my class are enjoyable.	4.46	.801	-1.572	2.421
31. I like the projects I work on in my class.	4.39	.896	-1.481	1.709

Table 3

Correlations Among MCA Dimensions (n = 826)

	Interest	Challenge	Choice	Enjoyment
Interest	1.00			
Challenge	.72	1.00		
Choice	.59	.66	1.00	
Enjoyment	.88	.62	.51	1.00

Note. **All correlations significant at the $p < 0.01$ level.**

& Gable, 2001a) fit the Super Saturday sample data. The original MCA model yielded fit indices similar to those found in previous studies (Gentry & Gable, 2001b; Gentry et al., 2001). We did not generate separate fit indices for elementary and middle grades, but rather analyzed the sample as a whole because the enrichment program we studied included students at both levels and some classes have students in elementary and middle school grades. Table 4 shows the goodness of fit indices for the Saturday enrichment sample for the MCA original model we tested.

The MCA original model fit the Saturday enrichment sample with a GFI value of .86, CFI value of .89, and RMSEA value of .06. Comparing these values to the fit statistics obtained with the normative sample, we noted that the model did not fit the Saturday enrichment sample as well as it did the normative sample, which had goodness of fit indices of .95 (elementary) and .88 (middle school) and RMSEA of .04 (elementary) and .09 (middle school; Gentry & Gable, 2001a). To test the second research question concerning how alternative models affect overall model fit, we analyzed two alternative models and present the results below.

Second-Order Model. Table 4 presents the chi-square and fit statistics for the model containing a second-order factor connecting Interest and Enjoyment. This model did not show any improvement of fit. Instead of the expected decrease in the chi-square value when the second-order term was added to the model, there was an increase in chi-square from 1,726 for the original MCA structure to 2,145 for the model including a second-order term.

Table 4

Comparison of Fit Indices for the Different MCA Models

Model	x^2 (*df*)	GFI	RMSEA	RMSEA 90% CI	CFI
MCA Original Model	1726.70 (428)	0.86	0.06	(0.0577, 0.0636)	0.89
Second-Order Model	2145.51 (429)	0.85	0.07	(0.0665, 0.0724)	0.89
Three-Factor Model	2089.63 (431)	0.83	0.07	(0.0654, 0.0712)	0.86
Revised MCA	1269.09 (379)	0.91	0.05	(0.0472, 0.0541)	0.92

Other fit indices also showed worse fit for this model with lower GFI (.85) and CFI (.89) values and a higher RMSEA value (.07). We expected that including a second-order term would have significantly improved model fit due to fewer parameters being estimated, but that was not the case for the Saturday enrichment program sample.

Three-Factor Model. The next alternative model tested contained only three first-order factors. That is, we combined Interest and Enjoyment into a single factor. Results for that model are shown in Table 4. This three-factor model did not show significant improvement in fit with a greater chi-square value (2,089) than the chi-square value for the original MCA model (1,726). GFI and CFI values also decreased for the three-factor model (GFI = .83; CFI = .86) if compared with the original MCA model, and the RMSEA value increased to .07.

Possible Scale Revision

Research Question 3 involved testing whether certain items did not function well for the Saturday enrichment program data. Because some of the items had low factor loadings in the original validation studies of MCA and high modification indices and low factor loadings were observed in the current study, some items were considered for deletion. Items 16 and 17 had particularly low

factor loadings for the elementary and middle school normative samples. Each had loadings ranging from .06 to .49, which indicated they fared poorly in describing the factor of challenge when compared with other items. The modification index for Item 16 was 171.69 and the highest across all MCA items. Item 17 had the second largest modification index of 65.27. These values indicate how much chi-square values would decrease if these items were allowed to measure interest as well as challenge, that is, to cross load on both factors. In addition, the content of these items could be seen as ambiguous. Item 16 (What we do in class fits my abilities) could be seen as addressing the Interest or Enjoyment factors depending on how it was interpreted. Item 17 (This class is difficult) could be interpreted as a negative item with students rating the item lower if they actually enjoyed the level of challenge in the class because some might see an inverse relationship between challenge and difficulty. Although it is impossible to know exactly why these items functioned poorly, it was clear that different readings of the two items may have lead to unintended interpretations.

In order to further test our second research question, we examined the chi-square values and fit statistics for a model without Items 16 and 17. When this was done, the chi-square value decreased significantly to 1,269 in this revised MCA model from 1,726 in the original MCA model. The revised MCA model also had a lower RMSEA value of .05, which is at the level suggested by the literature (Hu & Bentler, 1999). GFI (.91) and CFI (.92) values for the revised model were also closer to the values suggested by the literature for good fit. Alpha reliability internal consistency scores for the challenge scale decreased from .78 to .76 after the removal of Items 16 and 17, but these values were still higher than the reliability estimate of .63 for the challenge subscale reported with the normative sample. Removing Items 16 and 17 from MCA not only significantly improved model fit, but also made the instrument more parsimonious, a goal in effective instrument development (Gable & Wolf, 1993).

Our final research question raised the issue of whether the MCA, in its current or a revised form, could be used as part of

an enrichment program evaluation. After reviewing the NAGC (2000) standards, what scholars in the field of gifted education suggest concerning program evaluation, and what good gifted programs should look like, we conclude that interest, challenge, choice, and enjoyment are important components of gifted programs. Further, the validity data and reliability estimates obtained from the Saturday enrichment sample support using MCA as one component of program evaluation in this and other similar out-of-school programs. Although Super Saturday was not specifically designed around the four MCA constructs, these are important aspects of the program and, thus, MCA is a good choice to measure student perceptions of these program components. The *Code of Fair Testing Practices in Education* (Joint Committee on Testing Practices, 2005) indicated that evaluation instruments must be related to program goals.

Discussion

In this study we evaluated MCA for use with students in out-of-school enrichment programs. We found the same factors existed for this sample of Super Saturday participants as for the general normative instrument sample (i.e., interest, challenge, choice, enjoyment). However, by eliminating two items from the Challenge scale, we strengthened the fit indices, reduced error statistics, and obtained acceptable internal consistency estimates. The decision to eliminate Items 16 and 17 was made because they functioned poorly with the Saturday enrichment sample and because these items appeared to be confusing or related to other constructs. Thus, based on these results with our data, we propose that MCA is a useful tool for evaluating or studying students' perceptions of their out-of-school enrichment programs regarding interest, challenge, choice, and enjoyment. Including MCA or a similar instrument as a component of out-of-school program evaluation responds to calls from VanTassel-Baska (2004) to include multiple perspectives on program evaluation in order to create a complete picture. Validating the use of this instru-

ment with a sample of students in a Saturday enrichment program improves the program evaluation and makes the results of the evaluation more defensible as suggested by VanTassel-Baska (2006). Responsible program evaluation should yield valid results, and this study provides evidence that a modified version of MCA can contribute valid information regarding students' perceptions of their classes in Saturday enrichment programs.

Instruments to adequately evaluate gifted programs are needed (Robinson, 2006; VanTassel-Baska, 2006), and one solution for providing appropriate tools involves evaluating existing instruments and adapting them for use with gifted populations. This study is also in accordance with Callahan's (2001) suggestion that better evaluation of gifted programs is an important strategy to be used in gifted education. The information obtained from MCA scores can provide insight into how often students perceive challenge, choice, interest, and enjoyment in their out-of-school enrichment programs. Many well-known out-of-school programs for gifted students are based on the need for students to have access to educational experiences that include the four dimensions of MCA. Because interest, challenge, choice, and enjoyment have all been referenced as key to positive gifted education programming outcomes (e.g., Alexander & Schnick, 2008; Robinson et al., 2007) the importance of evaluating students' perceptions of such constructs in their enrichment programs becomes self-evident.

For example, programs including Purdue University's Super Saturday, Northwestern University's Saturday Enrichment Program, and Duke University's Scholar Weekend all reference some of the dimensions of MCA as important features of their programs (Center for Talent Development, 2008; Duke University Talent Identification Program, 2008; Gifted Education Resource Institute, 2007b). Students in Saturday enrichment programs usually choose to attend these programs and also choose classes in areas that interest them and in which there is a need for talent development. Classes offered in out-of-school enrichment programs tend to be challenging, student-oriented, and to have hands-on activities that provide students with enjoyable

experiences. However, before selecting an instrument to evaluate any program, one should check that the instrument measures constructs that are related to the goals of the program (Joint Committee on Testing Practices, 2005).

Limitations and Suggestions for Future Research

The purposive sample used in this study was taken from a Saturday enrichment program at a single site, which contributes to limited generalizability of the results. Evaluating MCA using a sample representative of different enrichment programs in different states would provide further evidence of its usefulness. We recognize also that the four dimensions measured by MCA may not be central to all enrichment programs. Therefore, MCA may vary in its usefulness as an evaluation tool based on the emphasis of the program being evaluated. Additionally, the participants in this sample rated their experiences positively on this instrument, which may indicate a censoring of student perceptions.

Conclusion

We conclude that removing two items from the MCA created an appropriate tool to use in evaluating our Saturday enrichment program. This change demonstrates that when using an instrument in a different context, research must be conducted in order to determine if valid information can still be obtained (Joint Committee on Testing Practices, 2005). Yet, the original MCA investigation and this study had similar results, possibly due to the fact, that in its original development, gifted students were oversampled with 24% of the elementary and 44% of the middle school samples identified as gifted. Other out-of-school programs and in-school enrichment programs may want to consider using the MCA to learn how their student participants view their programs. We suggest investigating how the MCA, modified as suggested in this project, works with students from different programs.

By far the most important implication of this study is that an instrument was evaluated on a new population, in this case students in a Saturday enrichment program, and found to be appropriate and able to yield valid information as to the perceptions of those students. Such research is necessary whenever an instrument is used with a different population than that on which it was originally normed. As revised, MCA is a tool for use in program evaluation that provides measures of four motivational dimensions commonly emphasized in programs for high-ability students.

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