The purpose of this study was to evaluate My Class Activities (MCA), an instrument that can be used to evaluate gifted programs. A sample of MCA scores from 826 students in grades 3-8 from a Saturday enrichment program was used. We evaluated four different models using confirmatory factor analyses. Results indicated a revised version of MCA, including interest, challenge, choice, and enjoyment, with two items removed, could be used for Saturday enrichment program evaluation. The revised MCA is an option for enrichment program evaluation that provides measures of four motivational dimensions that are essential aspects of programs for high-ability students.

Introduction

Instruments designed to evaluate the effects of programs for gifted and talented students are scarce, but necessary. In 2006, VanTassel-Baska called for program evaluation studies “that provide evidence of program effectiveness and defensible results in serving the gifted as a population in
school” (p. 339). 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) also stressed conducting responsible evaluation as a necessity in both general and gifted education. Gentry and Gable (2001a) developed *My Class Activities (MCA)*, an instrument designed to measure students’ perceptions of interest, challenge, choice, and enjoyment regarding their classroom. *MCA* has been used to evaluate enrichment programs, but has not been specifically normed for use with such a population, which could differ substantially from students in a school setting. Using *MCA* in such a fashion could yield inaccurate results. Thus we evaluated *MCA*, using a sample of students from a Saturday enrichment program to determine whether *MCA* 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 (MCA)* is an instrument designed to assess the frequency with which students perceive four motivational components (Interest, Challenge, Choice, and Enjoyment) in their classes (Gentry & Gable, 2001a). Students respond to each of the 31 items using a five-point frequency response scale, and the final scores are obtained by averaging students’ responses to items on each scale. Gentry, Maxfield, & Gable (1998) assessed the content and construct validity of *MCA*. Content judges provided evidence of validity for the four factors. Exploratory factor analysis supported the hypothesized four-factor model.

*MCA* was normed using a national sample of 3,744 elementary and middle school students, both comprised of 51% males (Gentry, Rizza, & Gable, 2001; Gentry & Gable, 2001b). Alpha internal consistency estimates ranged from .68 to .92 (Gentry, et al., 2001; Gentry & Gable, 2001b). Confirmatory factor analyses (CFA) were used to further 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. RMSEA values ranged from .04 to .09 (Gentry & Gable, 2001a).
The four dimensions of MCA have long been integral components of gifted programs (Gentry & Gable, 2001a) and are referred to in the NAGC Pre-K-Grade 12 Gifted Program Standards (NAGC, 2000) in several different sections. For example, student interest should be considered with regard to identification, and 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 (Tomlinson & Edison, 2003). The four dimensions have also been cited as important in student achievement and motivation. Student interest is an especially important aspect of Saturday enrichment programs, since students choose classes in areas that relate to their interests (Robinson, Shore, & Enersen, 2007). Considering student choice in instructional planning and programming is key to optimal learning experiences (Alexander & Schnick, 2008). 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 of classroom activities has been suggested as vital for successful learning (Csikszentmihalyi, 1990; Renzulli, 1994).

Gifted and talented program evaluation

According to VanTassel-Baska, “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. Because no single measure will give a complete picture, Feng and VanTassel-Baska (2004) recommend 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 is not often captured in other measures.

Saturday Enrichment
Saturday enrichment programs offer several potential benefits to gifted students. Children in out-of-school enrichment programs are exposed to advanced content in diverse subject areas while being surrounded by like-ability peers (Davis & Rimm, 2004; Olszewski-Kubilius, 2003). Furthermore, with the implementation of No Child Left Behind, 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. Because MCA has been used to evaluate Saturday enrichment programs since 2004, the purpose of this study was to analyze the factor structure of MCA using a sample of such students to determine its value as an evaluation instrument. 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. What changes (if any) should be made to MCA to enable the instrument to be used with 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 in grades 3-8 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 four-year period. Participants represented a wide range of communities, including rural, suburban, and urban locations and were 51% female. Listwise deletion was used to eliminate any case in which all 31 MCA items were not completed because missing cases were distributed relatively equally across the different sessions. After listwise deletion, 826 cases were kept and used for all factor analyses. Data collection took place at the end of each Saturday
enrichment program. Course assistants administered MCA on the final day following an identical set of directions to ensure consistency in administration.

Data Analysis

We used MPlus software (Muthén & Muthén, 2007) to perform CFA. Traditional maximum likelihood (ML) estimation was used in the factor analyses based on the Finney and DiStefano (2006) recommendation that ML 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.

First we tested the original MCA model from Gentry and Gable (2001a), then another model that included a second-order factor above interest and enjoyment, and finally, a model containing three first-order factors (interest and enjoyment combined). We also performed analyses to evaluate a model excluding some of the MCA items. In order to evaluate each model, we examined the chi-square values, GFI, RMSEA, and Comparative Fit Index (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). We also examined alpha reliability estimates. Values above .80 are considered good for instruments in the affective domain (Gable & Wolf, 1993).

Results

Model Fit

The original MCA model (Gable & Gentry, 2001) yielded fit indices similar to those found in previous studies (Gentry et al., 2001; Gentry & Gable, 2001b). Table 1 presents the fit indices for the different MCA models that were evaluated.
Table 1. *Comparison of Fit Indices for the Different MCA Models*

<table>
<thead>
<tr>
<th>Model</th>
<th>$x^2$ (df)</th>
<th>GFI</th>
<th>RMSEA</th>
<th>RMSEA 90% CI</th>
<th>CFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCA Original</td>
<td>1726.70</td>
<td>.86</td>
<td>0.06</td>
<td>(0.0577, 0.0636)</td>
<td>0.89</td>
</tr>
<tr>
<td>Model</td>
<td>(428)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second-order Model</td>
<td>2145.51</td>
<td>0.85</td>
<td>0.07</td>
<td>(0.0665, 0.0724)</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>(429)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three-factor Model</td>
<td>2089.63</td>
<td>0.83</td>
<td>0.07</td>
<td>(0.0654, 0.0712)</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>(431)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revised MCA</td>
<td>1269.09</td>
<td>0.91</td>
<td>0.05</td>
<td>(0.0472, 0.0541)</td>
<td>0.92</td>
</tr>
<tr>
<td></td>
<td>(379)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The fit statistics for the original MCA model presented in Table 1 indicate adequate fit, but all fall just short of recommended values (Hu & Bentler, 1999). Comparing these values to the fit statistics obtained with the normative sample (GFI=.88 to .95, RMSEA=.04 to .09), we noted that the model did not fit the Saturday enrichment sample, which had a GFI value of .86 and RMSEA value of .06, as well.

Table 1 also presents the fit statistics for a model which included a second-order factor connecting interest and enjoyment. This model did not improve the fit. Instead of the expected decrease in the chi-square value when the second-order term was added, chi-square increased from 1,726 for the original MCA model to 2,145 for the model including the higher-order term. The other fit indices also showed poorer fit for this model, when compared to the original MCA model, with lower GFI (.85) and CFI (.89) values and a higher RMSEA value (.07). Finally, we tested a model with three first-order factors. That is, we made interest and enjoyment a single first-order factor. Results for that model are shown in Table 1. The three-factor model also did not show significant improvement in fit with a higher 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) as compared to the original MCA model and the RMSEA value increased (RMSEA=.07).

Possible Scale Revision

Since some of the items had low factor loadings in past studies of MCA and the analyses of the three models in this study suggested some of the items could be problematic, we decided to evaluate the fit of the model when analyzed without some of the poorest functioning items. Items 16 and 17 showed the lowest factor loadings and may not contribute to describing the factor of challenge when compared with other items. These items also had large modification indices of 171.69 and 65.27 respectively. These were seen as especially high since typical modification indices for the sample ranged from 10 to 25. Fit statistics for the model without items 16 and 17 are also shown in Table 1. The chi-square value decreased significantly to 1,269 in the revised MCA model from 1,726 in the original MCA model. The revised MCA model also had a lower RMSEA value of .05, and higher GFI and CFI values of .91 and .92. Alpha reliability internal consistency estimates for the four scales ranged from .77 to .88. These values meet those values recommended in the literature.

Discussion

In this study we evaluated MCA for use with students in Saturday enrichment programs. We found the same factors existed for this population as for the instrument normative sample. However, by eliminating two items from the Challenge scale, we obtained higher fit indices while maintaining similar internal consistency estimates. Based on these results we propose that MCA is a useful tool for evaluating or studying student participants’ perceptions of their Saturday enrichment programs. The revised MCA could be one instrument used in order to create a complete picture of a program’s outcomes. Including such an instrument in program evaluation responds to calls from VanTassel-Baska (2004) to include multiple perspectives on program evaluation. Validating an instrument that measures students’ perceptions of interest, challenge, choice, and enjoyment with a sample of students in a Saturday enrichment program may help improve program evaluation and make results of the
evaluation more defensible (VanTassel-Baska, 2006). This study provides evidence that results from a revised version of MCA can provide valid data regarding students’ perceptions of their Saturday enrichment programs. When using an instrument on a new or different population, research concerning whether the instrument works with this population is necessary. These results suggest that the revised version of MCA can be used in enrichment program evaluation and provides measures of four motivational dimensions that are essential aspects of programs for high-ability students.

Limitations and Suggestions for Future Research

The sample used in this study was taken from a Saturday enrichment program at a single site, limiting the generalizability of the results. Future studies should include students from multiple programs. Evaluating the MCA using a sample of students from different enrichment programs in different states would provide further evidence of its usefulness. Another limitation regarding the sample is the fact that some of the participants took MCA multiple times during data collection, although always rating a different class. Additionally, the participants in this sample rated their experiences positively on this instrument, which may indicate a censoring of student perceptions.
References


