Secondary Student Perceptions of Their Class Activities Regarding Meaningfulness, Challenge, Choice, and Appeal: An Initial Validation Study

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Abstract

This research reports the results of an initial study in which the instrument Student Perceptions of Classroom Quality was developed and then administered to a sample of students to allow examination of validity and reliability evidence. Accordingly, exploratory factor analysis was used to examine the construct validity of the scores, and internal consistency alpha reliability estimates were calculated for the 4 factors that were derived from the data. Student Perceptions of Classroom Quality, assesses how high school students perceive their class activities concerning meaningfulness, challenge, choice, and appeal—constructs clearly tied in the literature to motivation and learning and with their roots of practice found in gifted education programming. Validity and reliability evidence from this pilot study were sufficiently strong, and thus, this line of research will be continued using a larger national sample in a confirmatory study of the revised version of the instrument that resulted from the present research. Ultimately, this instrument has potential value for those engaged in research or school improvement efforts in both general education and gifted education by providing them a means to assess constructs central to learning and classroom climate from the students’ points of view.

Currently, the constructs of challenge, choice, interest, enjoyment, and meaningfulness form the basis for many curricular and instructional differentiation efforts (Renzulli, Leppien, & Hays, 2000; Tomlinson, 1995, 1999). Historically, incorporating student interests, appropriately challenging curricula, meaningful choices, and enjoyment have been advocated in designing learning experiences for gifted students. It has frequently been suggested that gifted education pedagogy be extended to improved general education.

Over the past 20 years, while the regular school program focused on basic skills and minimum standards, programs for gifted and talented students served as laboratories for innovative and experimental approaches to teaching and learning. A variety of educational options were developed in programming and scheduling. Many new programs focused on complex thinking strategies and problem-solving and used sophisticated teaching strategies... developed alternative teaching strategies and interesting curriculum approaches.... Now many educators believe that the knowledge and experience that gifted education has gained... can be used to upgrade all of education and are calling for this to be done. (p. 23)

This report further called for the improvement of education for all of America’s students by providing more challenging opportunities for learning; incorporating more advanced materials, including real-life learning opportunities; attending to individual talents and strengths; and grouping by needs and interests. One means of assessing whether such efforts are happening in both general education and gifted education programs is by measuring students’ perceptions of their class activities. Valid and
reliable assessment of student perceptions of challenge, choice, interest, enjoyment, and meaningfulness within their classrooms can provide valuable insights concerning improvement in educational opportunities for these students.

Currently, My Class Activities (Gentry & Gable, 2001) is available for use with elementary and middle school students. My Class Activities asks students in grades 3–8 about their enjoyment of school, their level of interest in their studies, the amount of choice they feel they have in their academic life, and how frequently they feel challenged by their studies. The present research extends the previous work done with elementary students by developing a similar measure for use with high school students.

The purpose of this study was to begin development of an instrument to assess student attitudes toward their educational experiences in secondary school classrooms with regard to interest, challenge, choice, enjoyment, and meaningfulness. Given the connection of these constructs to motivation and learning, such instrumentation would clearly be valuable to those engaged in research or school improvement efforts. Further, this instrument would be of special interest to those involved in the education of gifted and talented students since the constructs it assesses often serve as the basis of gifted education programs. Currently few instruments are available to educators and researchers that assess student attitudes about their class activities in these areas. In fact, a review of the literature revealed only five similar instruments that specifically target secondary students (Chionh & Fraser, 1998; Fraser, 1990; Fraser, Anderson, & Walberg, 1982; Fisher & Fraser, 1983; Taylor, Dawson, & Fraser, 1995). None of these instruments collectively assess the constructs measured by Student Perceptions of Classroom Quality.

**Literature Review**

People will be most creative when they feel motivated primarily by the interest, enjoyment, satisfaction, and challenge of the work itself—not by external pressures. (Amabile & Hennessey 1992, p. 55)

The enhancement of learning is possible if schools provide challenging and interesting educational experiences in which students are afforded choices in an enjoyable environment (Gentry, Gable, & Springer, 2000). The constructs of meaningfulness, challenge, choice, interest, and enjoyment, which are measured by the instrument, Student Perceptions of Classroom Quality (SPOCQ), have been shown in the literature to be central to learning. Further, these constructs have often served as the basis for gifted education programming, research, and philosophy. These dimensions comprise the theoretical basis upon which the instrument was constructed, and following is a brief overview of the literature supporting each construct.

**Meaningfulness**

Rooted in educational psychology is the concept of meaningfulness, which includes the connection between prior knowledge and personal meaning. In *Realms of Meaning*, for example, Phenix (1964) suggested that, for learning to be optimal, topics must be relevant, meaningful, and interesting to the child and have an appeal to his or her imagination. Piaget (1970) stated that children adapt to their world by assimilating a new event into an existing scheme. Children seek to construct meaning by connecting new information to that which is already stored in their long-term memories. Learning occurs when a student’s prior experiences and knowledge are connected to new information and concepts (Wittrock, 1985). Specifically, it has been found that meaningful learning is more effective than rote learning (Ausubel, Novak, & Hanesian, 1978; Bower, Karlin, & Dueck, 1975; Bransford & Johnson, 1972). Goodlad (1984) emphasized the importance of relevance of school to the lives of students. Unfortunately, his research revealed that students “do not often get involved in projects where they and their classmates set and achieve goals that are important to them” (p. 192).

In discussing talent development, Durden and Tangherlini (1993) stressed that, by providing opportunities for young people to explore in-depth fields in which they show the greatest talent and interest, educators can provide personal meaning for students that will, in turn, connect
students to their own education. Hootstein (1994) suggested making learning relevant and interesting to students by relating to students' needs, interests, concerns, and experiences. After 20 years of scholarship and research devoted to developing student talents, Renzulli (1994) discussed at length how personal meaning and relevance of information help students construct knowledge and learn. He advocated offering opportunities for students to conduct individual or small-group investigations as a means for providing personally meaningful educational experiences. Reis and Cellerino (1983) found one benefit to self-directed learning was that "students begin to understand the process of their own learning, become more self-directed than teacher-directed, realize they can indeed have a significant impact on their own learning and, finally, produce a product of excellence" (p. 138). Therefore, classroom activities that are practical and related to the students' daily lives facilitate connections and learning. Further, helping students connect learning to their personal interests and direct their own learning incorporates meaning and facilitates learning with personal depth.

Challenge

Only when challenges and skills were felt to be high and working in tandem did all the varied components of well-being—cognitive, emotional, and motivational—come together for the students. Concentration was far above its normal classroom level, and self-esteem, potency, and involvement also reached their highest levels. (Csikszentmihalyi, Rathunde, & Whalen, 1993, p. 186).

Vygotsky's (1962) premise that children show preferences for tasks that are slightly beyond their abilities and, therefore, intellectual development requires difficult tasks is an important consideration in any discussion of challenge. Challenge is inherently intrinsic, associated with positive affective perceptions that incline the learner to engage actively in the task (Pintrich & Schrauben, 1992). Eccles and Midgley (1989) suggested that teachers should have high expectations for the academic performance of youth and, thus, appropriately challenge them. Clifford (1990) asserted that success is a motivational issue driven by issues of challenge. Learning theorists who have embraced Vygotsky's work have demonstrated that moderately difficult tasks are a prerequisite for maximizing intellectual development (Clifford, 1990; Fischer, 1980). Besides learning, a consequence of personal challenge is a willingness to persevere (Baird & Penna, 1996). It would follow that educators strive for challenges in the classroom to enhance student learning and motivation.

This need for challenge in U.S. schools is widely recognized; yet, challenge seems to be lacking in many classrooms, leading to bored and frustrated students who do not reach their potentials (Archambault et al., 1993; Feldhusen & Kroll, 1991; Goodlad, 1984; Reis et al., 1993; Westberg, Archambault, Dobyns, & Salvini, 1993). Among the issues outlined in the federal report National Excellence: A Case for Developing America's Talent (U.S. Department of Education, 1993) were those of providing more challenging curricula and establishing high-level learning opportunities. These issues are important because a lack of challenge leads to boredom in school for both gifted and nongifted students (Feldhusen & Kroll, 1991). Boredom in school decreases motivation to learn and may lead to underachievement. By developing appropriately challenging curricula and effective instructional methods, a quality education can be delivered to students of all achievement levels (Bloom, 1985; Shore, Cornell, Robinson, & Ward, 1991; Vygotsky, 1962).

Choice

Providing students with choices in education has been identified as a motivational tool that encourages learning (Bloom, 1985; Dewey, 1913, 1916; Gardner, 1991; Goodlad, 1984; Renzulli & Reis, 1997; Shore et al., 1991; Wang & Lindvall, 1984). For example, a recurring theme in literature concerned with adolescent learners is one of offering choices to students as a means of increasing motivation (Ames, 1992; Deci & Ryan, 1985; Eccles & Midgley, 1989). Renzulli (1994) explained that students are engaged in meaningful
learning when they are involved with projects about which they care deeply and that they choose to pursue. Eccles and Midgley (1989) suggested providing students choices and input into class discussions, while Robinson (1991) and Rogers (1991) emphasized the importance of allowing choices regarding group assignments. Pintrich and DeGroot (1990) found that involvement in self-regulated learning that included choice led to higher self-efficacy and improved academic performance for middle school students. Similarly, Kerka (1994) argued that choice over goals, objectives, type of participation, content, method, and assessment are important to self-directed learning.

The issue of choice, according to Glasser (1996) and Deci (1995), is crucial for addressing motivation and student achievement. Deci linked choice to the concept of student autonomy and the power this autonomy has to encourage self-regulated learning. Accordingly, both Deci and Glasser suggested that providing choices in the classroom requires that teachers share power with students, thus encouraging decision making and ownership of learning. Faske and Grubb (1997) found that students' perceptions of teacher implementation of learner-centered practices had positive effects on student achievement and self-efficacy. Allowing students to make choices in their learning results in a greater sense of ownership and personal involvement in the educational process. Thus, choice offered to students within educational activities may serve to enhance relevance, achievement, and belonging. "A measure of choice is arguably the ingredient most crucial to the realization of intrinsic rewards in the classroom" (Csikszentmihalyi et al., 1993, p. 193).

**Interest**

Dewey (1913, 1933), who is recognized as a forerunner of modern interest research, defined interest as containing three basic characteristics: (1) It is an active, "propulsive" state; (2) it is based on real objects; and (3) it has high personal meaning. With regard to personal meaning, people enjoy tasks that interest them, whether this leads to the attainment of rewards and other goals or not, studies of interest's impact are central to an understanding of the effects of intrinsic motivation (Deci & Ryan, 1991, 1992). Tassinari (1996) utilized inquiry-based projects and found that, as the students became more interested and motivated in their work, they also began to take more responsibility for their learning and therefore learned more efficiently. Drawing from and using student interests as a means to engage students in learning has been advocated by many researchers and theorists (Dewey, 1916; James; 1890; Renzulli, 1978; Ward, 1980; Whitehead, 1929). In 1929, Whitehead suggested that there cannot be mental development without interest. Schiefele (1991) described interest as a directive force that influences performance and motivation within specific content areas. Advocates for the education of gifted children have suggested that student interests should be central in determining educational programs (Gallagher, 1985; Maker, 1982; Parke, 1989; Passow, 1982; Renzulli, 1994). Interest is tied to motivation, and motivation is tied to learning; therefore, studying interests can lead to insights that improve teaching and learning (Deci & Ryan, 1985; Schiefele; Tobias, 1994).

By the middle school years, many students view school as uninteresting (Eccles, Wigfield, Flanagan, Miller, Reuman, & Yee, 1989). To counter this trend, Hootstein (1994) suggested relating learning to students' needs, interests, concerns, and experiences, as well as encouraging students to pursue their own interests. Therefore, considering students' interests can serve to enhance both their personal enjoyment and motivation.

**Enjoyment**

Enjoyment as a motivating factor in the learning process cannot be ignored. Providing learning experiences that are engaging and enjoyable is essential to effective educational practices (Csikszentmihalyi, 1990; Dewey, 1916; Renzulli, 1994; Schiefele, 1991). With regard to enjoyment, Lepper and Chabay (1985) suggested that promoting students' sense of control, providing challenging activities, provoking curiosity, and highlighting the functionality of an activity or topic are ways to increase motivation in the classroom, thereby making learning both enjoyable and productive.
Literature on enjoyment in the classroom includes using educational games as a means of promoting fun, learning, understanding of concepts, motivation, and self-esteem (Johnson & Johnson, 1987, Maltese, 1995, Nemerow, 1996). Renzulli (1994) proposed that the best learning occurs when children enjoy what they are doing. Further, he discussed that highly creative, productive people are at optimal performance levels when they are doing what they most enjoy. Tied to the notion of enjoyment in learning is the idea that students are more likely to learn from teachers who show enjoyment in their teaching (Csikszentmihalyi & McCormack, 1986) and a passion for their subject (Renzulli, 1988). By incorporating appeal through attention to student interests and enjoyment into everyday classroom activities, school might become a better learning place for students and teachers alike.

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What we need in America is for students to get more deeply interested in things, more involved in them, more engaged in wanting to know; to have projects that they can get excited about and work on for long periods of time, to be stimulated to find things out on their own. (Gardner, cited in Brandt, 1993, p. 5)

Method

Item Development and Conceptual Design: Validity Evidence From Test Content

Based on the previous instrumentation work and a thorough review of the literature, five constructs were identified and targeted for measurement: interest, choice, challenge, enjoyment, and meaningfulness. For the purposes of this instrument, these constructs were defined as follows:

- **Interest**: reflects positive feelings; a preference for certain topics, subject areas, or activities.
- **Choice**: gives students the right or power to select educational options and direct their own learning.
- **Challenge**: engages the student and requires extra effort.
- **Enjoyment**: provides the student with pleasure and satisfaction.
- **Meaningfulness**: indicates significance or importance to the student; having relevance to the student’s life.

Ten items were written for each of the five categories for the content validity study. Prior to submitting the items to content experts, the items were reviewed for clarity. A complete set of 50 items addressing the categories of interest, choice, challenge, enjoyment, and meaningfulness were submitted to 22 content experts in the field of education (1 elementary principal, 1 secondary principal, 3 university faculty members, 6 high school teachers, and 11 gifted education teachers). The experts were given the list of 50 items and asked to indicate to which category (interest, choice, challenge, enjoyment, or meaningfulness) they thought each item belonged. In addition, the experts were asked to rate how confident they were with their category assignments using the scale of *not sure* (1), *pretty sure* (2), and *very sure* (3). The selection criteria included agreement of 65% or greater and a confidence mean above 2.45. Thirty-one items satisfied the selection criteria and were included on the pilot survey instrument titled Student Perceptions of Classroom Quality. Because the survey was designed to assess attitudes, a 5-point Likert response scale (strongly disagree, disagree, undecided, agree, strongly agree) was selected to measure the degree of students’ agreement with each of the 31 items (Henerson, Morris, & Fitz-Gibbon, 1987).

Administration and Data Analyses of Student Perceptions of Classroom Quality

Sample. Using the validity evidence regarding test content, researchers formatted the instrument, prepared directions, and administered Student Perceptions of Classroom Quality to students in an urban high school in the upper Midwest during October 1999. This site was selected for several reasons. First, the site was aware of our previous work on instrumentation related to student attitudes and asked if we were interested in developing a similar measure for use with secondary students. Specifically, since they could find no suitable instrumentation, they were interested in piloting such an instrument prior to
implementing a curriculum redesign in an effort to assess whether the redesign had any effects on student attitudes. Second, the diversity at this high school and the availability of all students in a specific course before any curricular changes were implemented made the site attractive.

Four hundred and twenty ethnically diverse students in grades 9–12, ages 14–18 responded to the survey (grade 9 = 26%, grade 10 = 56%, grade 11 = 4%, grade 12 = 11%). These students were 56% female and represented various ethnic groups (14% African American, 8% Asian American, 58% Caucasian American, 2% Hispanic American, 5% Native American, 14% Other). This sample included students of varying achievement levels who were enrolled in Biology with 10% of the sample enrolled in Advanced Biology.

Procedure. A researcher administered the surveys to the students at the beginning of their biology class period and verbally gave the students the following instructions.

The teacher would like to know how you feel about your class activities. Read each statement and indicate how much you agree with the statement by marking an X in the corresponding box for strongly disagree, disagree, undecided, agree, or strongly agree. Your individual answers will be kept confidential. Remember to mark an X for each statement. When you are finished, please complete the demographic information on the back page.

Students were reminded to think of their biology class when responding to the survey. The students completed the survey within 10 minutes. It is reasonable to believe that students responded honestly since the survey was administered by someone other than the classroom teacher, the students were promised confidentiality, and there were no identification codes or names on the surveys.

Validity Evidence for Construct Interpretation

The data were analyzed using SPSS descriptive procedures (i.e., frequencies, percents, means, and standard deviations), common factor analysis followed by an oblique rotation, and alpha reliability estimation. Factor analysis was used to examine the construct validity of scores on the attitude survey. A principal axis common factor model with an oblique (oblimin) rotation was used to examine empirically the interrelationships among the items and determine if they shared common conceptual meaning with respect to the content of the items (Gable & Wolf, 1993). Because SPSS begins a common factor analysis by extracting components, the number of dimensions sent into rotation is actually based on the number of components. To rotate the proper number of factors, we examined SPSS’s “Final Statistics” to decide how many factors had eigenvalues larger than 1.0. Because it is widely recognized that the eigenvalue-greater-than-one criterion is insufficient by itself, scree plots were consulted that provided evidence consistent with the eigenvalues such that extraction of four factors was appropriate.

As suggested by Thompson and Daniel (1996), parallel analyses were also performed by completing a factor analysis on a randomly generated raw data base that matched the data base in the present study with respect to number of subjects, variables, and scale (5-point). Eigenvalues from the survey analysis were compared to those generated by analysis of the random number data base. The fourth eigenvalue was greater than the fourth eigenvalue from the random number analysis, but the fifth eigenvalue was less than the fifth eigenvalue from the random number analysis. This evidence further supported the extraction of four factors from the data. Then, the factor analysis program was rerun, forcing the program to a four-factor solution (Owen, 1995).

The final solution for the survey included four factors that accounted for 89% of the common variance. Items with factor structure coefficients greater than .35 were retained, and items that reached this saliency criterion on two factors were eliminated. The majority of the nonsalient coefficients were below .10, indicating the strength of the factor constructs as defined by the items. Factors resulting from this analysis made conceptual sense. The results of the exploratory factor analysis are displayed in Table 1. Included
Table 1

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item</th>
<th>Stem</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Meaningfulness</td>
<td>14 In my class, my teacher relates current issues to the material we are learning.</td>
<td></td>
<td>0.77</td>
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<td></td>
<td>8 The teacher applies the learning to practical experiences.</td>
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<td>0.74</td>
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<td></td>
<td>12 My teacher makes the connections between the course material and society.</td>
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<td>0.68</td>
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<td></td>
<td>27 In my class, I explore real issues that affect the world around me.</td>
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<td>0.65</td>
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<td></td>
<td>30 I can relate the material discussed in my class to my daily life.</td>
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<td>0.64</td>
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<td></td>
<td>29 I utilize my critical thinking skills in my class.</td>
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<td>0.43</td>
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<tr>
<td>2-Challenge</td>
<td>10 I find my class assignments a challenge to complete.</td>
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<td>0.75</td>
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<td></td>
<td>17 My class challenges my intellectual abilities.</td>
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<td>0.70</td>
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<td></td>
<td>21 The projects are challenging in my class.</td>
<td></td>
<td>0.64</td>
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<td></td>
<td>5 I find my class instruction challenges my intellectual abilities.</td>
<td></td>
<td>0.63</td>
</tr>
<tr>
<td>3-Choice</td>
<td>7 My teacher lets me choose the resources I use for projects.</td>
<td></td>
<td>0.75</td>
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<td></td>
<td>13 I am given lots of choices in my class.</td>
<td></td>
<td>0.74</td>
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<td></td>
<td>18 I feel responsible for my learning because I am allowed to make choices in my class.</td>
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<td>0.68</td>
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<td></td>
<td>3 I am given choices regarding how to show the teacher what I have learned.</td>
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<td>0.60</td>
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<td></td>
<td>19 The teacher uses a variety of instructional techniques that make this class enjoyable.</td>
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<td>0.37</td>
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<td></td>
<td>24 I am encouraged to pursue subjects that interest me in my class.</td>
<td></td>
<td>0.36</td>
</tr>
<tr>
<td>4-Appeal</td>
<td>11 The assigned reading material for my class is interesting.</td>
<td></td>
<td>0.85</td>
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<td></td>
<td>22 The material covered in my textbook is interesting.</td>
<td></td>
<td>0.76</td>
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<tr>
<td></td>
<td>28 I find the reading material for my class a pleasure to read.</td>
<td></td>
<td>0.67</td>
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<td></td>
<td>4 I find the contents of my class interesting.</td>
<td></td>
<td>0.41</td>
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<td></td>
<td>23 The textbook provides examples of how the material relates to society and daily living.</td>
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<td>0.40</td>
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<td></td>
<td>25 I like going to my class each day.</td>
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<td>0.38</td>
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Table 2

<table>
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<tr>
<th>Factor Intercorrelation Matrix</th>
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<tbody>
<tr>
<td>Factor 1</td>
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<td>Factor 1</td>
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<td>Factor 2</td>
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<td>Factor 3</td>
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<td>Factor 4</td>
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Naming the Factors

In the item development and conceptual design, validity evidence of test content from both experts and theory suggested five constructs. However, further examination of validity evidence for construct interpretation of the data revealed only four constructs. Items that had been judged and written to assess Interest and Enjoyment as separate constructs had strong intercorrelations and loaded together on the same factor. Given the high correlation between Interest and Enjoyment in the elementary version of the instrument (Gentry & Gable, 2001) and the conceptual relationship between these two concepts, this collapse was not unexpected. Therefore, this new construct was examined and named according to its conceptually meaningful content.

are the names assigned to the factors, the item stems, and the factor structure coefficients. The intercorrelations among the factors are contained in Table 2. A summary of the factors derived from the survey follows.
Another difference that existed between the elementary instrument and the secondary instrument was that, in the elementary version, the hypothesized factor of Meaningfulness couldn’t be measured (Gentry, Maxfield, & Gable, 1998). However in the new secondary instrument, Meaningfulness was the strongest factor, indicating that secondary students’ perceptions of meaningfulness in their classrooms can be measured, unlike their elementary school counterparts. Following is a brief discussion of the rationale for naming each factor together with a description of how a typical high- or low-scoring student might view his or her class. Specific items that comprise each factor can be found in Table 1.

Factor 1 was named Meaningfulness based on the items defining the factor, which described students’ perceptions of how the teacher and material in the classroom related to their lives. A student with a high score on this factor would find the class activities practical and related to his or her world and daily life. This student would realize that making connections with new material enhances learning.

Factor 2 was named Challenge based on the items that described how a class challenged students’ intellectual abilities. Students with high scores on this factor would find that the assignments, projects, and class engage them and require extra effort. In addition, students with a

| Table 3 |

| Student Perceptions of Classroom Quality: Response Percentages and Alpha Reliability Estimates Grades 9–12 (n = 421) |

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Item</th>
<th>Response percentage</th>
<th>Corrected r w/dimension</th>
<th>Alpha Rel. if deleted</th>
<th>Alpha Reliability</th>
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<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>1-Meaningfulness</td>
<td>14</td>
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<td>2-Challenge</td>
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Note: *Value is the correlation of each item with the remaining items in the dimension. *Alpha reliability estimate if the respective item is deleted from the dimension.
high score on this factor might find the class instruction to be intellectually stimulating.

Factor 3 was named Choice based on the items in the factor that defined students' perceptions of choice in the classroom, including ownership and responsibility for learning. A student with a high score on this factor would have the ability to select projects, choose subjects to pursue, and take pleasure in being in charge of his or her own learning and how he or she displays knowledge to the teacher.

Factor 4 was named Appeal and contained items from the hypothesized constructs of Interest and Enjoyment. In reviewing the content of these items and recognizing the large correlation between these two factors on the elementary version of the interests, it made conceptual sense that the items converged into one factor. Therefore, the items on this factor describe how enjoyable and interesting students find the materials and content of their class. A student with a high score on this factor would find the material and content of the class gratifying and pleasing and agree that the material relates to his or her daily living.

Far too often, what is reported are the effects on achievement, which frequently equates to test scores.

Internal Consistency Alpha Reliability Estimates

Item analysis and alpha internal consistency reliability information are presented in Table 3. This test of internal consistency indicates how well the individual items within a factor reflect a common underlying construct (Spector, 1992). Overall, the grade 9–12 alpha coefficient estimates of the subscores ranged from .80 to .84, which is considered quite good for this type of affective instrument, indicating high internal consistency among the items within these factors (Gable & Wolf, 1993). For the items defining each dimension given in Table 3, the response percentages along with the item-level means and standard deviations are listed. The next column presents the correlation of each item with the remaining items defining the respective dimension. For this sample of high school students, we note that all items are well correlated with the others in each dimension. Consistent with Nunnally's (1978) domain item sampling model, we conclude that the empirical evidence supports the judgmental evidence regarding the sampling of item content from the intended domain of content identified earlier in the literature review.

Discussion

The purpose of factor analysis is "to examine empirically the interrelationships among the items and to identify or verify clusters of items that share sufficient variation to justify their existence as a factor or construct to be measured by the instrument" (Gable & Wolf, 1993, p. 108). Ideally, the empirically derived constructs should reflect the judgmental categories, and empirical evidence presented in this study supported judgmental evidence regarding item fit, with the exception of a four-factor solution in which Interest and Enjoyment were combined to form Appeal. Since previous work indicated a strong correlation between Interest and Enjoyment, this collapse was judged to be the most parsimonious solution, thus adding strength to the instrument.

The constructs measured by Student Perceptions of Classroom Quality are clearly tied to student motivation and learning, and, importantly, they provide the researcher or practitioner perspective concerning class activities from the students' points of view. Further, these constructs are often emphasized in programming and instruction for gifted students, which should make this instrument of special interest to those involved with gifted education efforts and initiatives. Researchers and practitioners often wonder what effects implementing differentiated curricula, accelerated services, or interest-based enrichment programs has on students. Far too often, what is reported are the effects on achievement, which frequently equates to test scores. This is a different sort of tool that can address (with evidence of appropriate validity and reliability) how students perceive such programs from an affective perspective.

Other common means of assessment and research include teacher self-report or observational studies. Previous work that compared student perceptions with teacher perceptions of classroom activities, indicated little, if any, relationship between the two (Gentry, Rizza, & Owen, 2002). Accordingly, the authors suggested that multiple data sources, including direct student data, should be considered before drawing
conclusions concerning classroom climates and activities. This instrument can facilitate the collection of data from students.

Instrumentation such as that presented here can serve as a powerful tool in educational assessment and improvement. In times when there are cries of standards, measurable achievement, basic skills for all, and even educational recession, it is important that those in the profession recognize that achievement, success, and learning extend far beyond what can be measured and reported on paper by a testing company. Looking to the students regarding their perceptions of constructs that are linked to learning and motivation has the potential to extend the definition of school improvement and student achievement. Such instrumentation can allow teachers to learn about their classrooms from the perspectives of their students and then make adjustments to their teaching strategies to accommodate individual needs. Further, Student Perceptions of Classroom Quality can help entire buildings or districts assess student attitudes concerning the levels of meaningfulness, challenge, choice, and appeal in the classrooms. Researchers can use this instrument to measure changes in student attitudes in conjunction with a specific treatment as related to achievement, productivity, or a host of other variables, as well as to make comparisons among identified groups of students concerning their attitudes.

Analyses of these data support further study of this instrument; therefore, phase two, a confirmatory study of Student Perceptions of Classroom Quality, is currently underway using a large, diverse national sample of students grades in grades 7–12. Additionally, because the constructs that guided this project came from practices commonly found in gifted education, research will investigate how advanced and gifted students perceive their class experiences, as well as how they compare with the general education population. Given that gifted programming efforts often attempt to incorporate challenge, choice, meaningfulness, and appeal, this instrument can help in evaluation efforts of such programs.

References


