

TEACHERS' PERCEIVED USEFULNESS OF STRATEGY MICROANALYTIC ASSESSMENT INFORMATION

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The current study examined special education teachers' ratings of the usefulness of strategy microanalytic assessment (SMA) (i.e., self-regulation, strategy use) and standardized norm-referenced assessment information (SNRA) (i.e., cognitive and academic skills). Ninety-six participants separately rated the frequency with which SMA and SNRA are used in schools and the usefulness of each report [i.e., Teacher Rating Questionnaire (TRQ)] for intervention planning about a case study. A mixed model experimental design revealed that even though SNRA information is more typical of the data provided in evaluation reports/Individualized Educational Programs, the SMA data were rated significantly more helpful than the SNRA for enhancing important school-related outcomes (e.g., test performance) as well as teacher-related roles (e.g., developing instructional plans). Despite the participants' consistent preference for SMA information, their overall TRQ ratings of the SNRA were positive. © 2006 Wiley Periodicals, Inc.

A variety of alternative assessment approaches, such as curriculum-based measurement and functional behavioral assessment, have been developed over the past couple of decades to assess important academic skills and school-related behaviors (Repp & Horner, 1999; Shinn, 2002). Another alternative assessment method, strategy microanalytic assessment (SMA), has recently been developed to target students' motivational and self-regulation processes as well as their use of specific learning strategies (Cleary & Zimmerman, 2004). This approach, which is grounded in social cognitive theory and research, involves the use of multiple assessment tools to assess students' task-specific motivational beliefs (e.g., self-efficacy) and self-regulation processes (e.g., self-evaluation) as well as their use of specific strategies (e.g., organization, time management) (Bandura, 1986; Zimmerman, 2000). It is an ecologically valid, context-specific assessment approach in that it seeks to identify students' beliefs and actions during specific academic tasks or activities (e.g., test preparation, homework) within particular school contexts (e.g., science).

In general, an examiner initially gathers information about students' use of learning or study strategies by using context-specific self-reports and interview procedures. After these strategies have been identified, an examiner will use *microanalytic* procedures to assess students' motivation relative to a particular learning activity (e.g., self-efficacy) as well as how they self-regulate their use of these strategies (e.g., self-monitoring, self-evaluation). For example, to microanalytically assess students' self-regulation and motivation processes when studying for science tests, an examiner may ask questions about their level of efficacy for attaining a specific test grade, their skill in monitoring their level of learning when studying, or the specific reasons why they received a failing grade on a previous test (i.e., causal attribution) (for more detailed procedures, see Cleary & Zimmerman, 2004).

The SMA is a potentially valuable assessment protocol because many of the processes that it measures have been shown to be significant predictors of academic success and other school-related

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outcomes (Bandura, 1997; Schunk & Pajares, 2004; Zimmerman & Schunk, 2001). For example, self-efficacy has been shown to be one of the most powerful determinants of motivated and strategic behavior (Bandura, 1997) while goal-setting, self-monitoring, and self-reflection processes are key factors in developing empowered, self-determined individuals (Locke & Latham, 1990; Schunk & Ertmer, 2000; Zimmerman, 2000). It also should be noted that variations of the semi-structured interviews used in the SMA have been validated with high-school and college students (Kitsantas, 2002; Zimmerman & Martinez-Pons, 1988), and psychometric data about the context-specific self-reports are currently being gathered with urban and suburban youth.

The present analog study examined teacher perceptions of the usefulness of SMA data and SNRA for intervention planning. It was expected that teachers would rate the SMA more favorably, but would report the SNRA as being used more frequently in schools. Although the SMA targets context-specific behaviors and processes (i.e., self-regulation, strategy use) whereas the SNRA assesses more global abilities (i.e., intelligence, academic skills), they are similar in that they both seek to produce information that can be used to improve instructional methods or to develop specific interventions for enhancing student performance in school (Cleary & Zimmerman, 2004; Flanagan & Kaufman, 2004; Sattler, 2001). For example, practitioners frequently use profile analysis of SNRA data to generate academic interventions while the SMA approach assesses specific school-related processes (e.g., study methods, motivation) that can be directly linked with school-based interventions. It also is important to note that perceived usefulness of SNRA data is a relevant issue for special education teachers given that most school psychologists continue to rely on SNRA tools in their evaluations (Haney & Evans, 1999).

METHOD

Participants

Ninety-six special education teachers from three suburban school districts participated in the study. The primary investigator contacted the administrator of each participating school district and was granted written permission to conduct the study. An administrator in each school arranged a day and time for the investigator to meet with the teachers who wished to participate in the study. Of the 113 special education teachers who were asked to participate in the study, 96 (i.e., 85%) volunteered. The majority of the sample was female (87.5%) and Caucasian (97%), with a mean age of 38.8 years. The level of education training varied as 4% earned a bachelor's degree, 50% earned a master's degree, 20% earned between master's and master's plus 30, and 26% earned greater than master's plus 30. In terms of special education teaching experience, 16% had between 0 and 3 years of experience, 26% had between 4 and 7 years of experience, 25% between 8 and 14 years of experience, and 33% had greater than 15 years of experience.

Materials

Each participant received a six-page packet containing an informed consent form, a demographic information sheet, two assessment reports (i.e., SMA and SNRA reports) and two copies of the Teacher Rating Questionnaire (TRQ). The demographic information sheet elicited information pertaining to the participants' age, gender, ethnicity, years of special education teaching experience, and level of education training.

Assessment reports. Both assessment reports (i.e., SMA and SNRA) consisted of three sections: (a) referral problem of a 12-year-old male, (b) purpose of assessment procedures, and (c) assessment findings. Although the reason for referral was identical in both the SMA and SNRA reports, the reports differed with respect to the purposes of assessment and the assessment results. The SMA report described the purpose of assessment as evaluating a seventh-grade boy's repertoire

and use of various learning strategies and self-regulation processes in a specific context (Cleary & Zimmerman, 2004). The findings in the report included information pertaining to his study, homework, and organizational strategies as well as his goal setting, self-efficacy, self-monitoring, attributions, and adaptive inferences. Nine descriptors were used in the assessment-findings section. A descriptor was defined as two qualitative statements about the student's strategies, beliefs, and/or self-regulatory processes. Note that there were two versions of the SMA report that varied across academic subject (i.e., science and social studies) to enhance the external validity of the results. The reports were identical except for the type of subject mentioned.

The SNRA report followed the same three-section format that was used to develop the SMA report. The SNRA described the primary purpose of the assessment as evaluating the student's intellectual and academic skills using standardized norm-referenced tests [i.e., Wechsler Intelligence Scale for Children (WISC-III; Wechsler, 1991) and Wechsler Individual Achievement Test (WIAT-II; The Psychological Corporation, 2002)]. The WISC-III was selected due to its' national recognition and frequent use by school psychologists (Haney & Evans, 1999; Wilson & Reschly, 1996). Although the WIAT-II was selected due to its national recognition, it also was used because of the participating schools' frequent use of this instrument for assessing students in their respective schools. The findings in this report involved a description of the student's verbal and nonverbal intellectual skills as well as his sight vocabulary, word attack, reading comprehension, mathematical reasoning, and arithmetic operation skills. A total of nine descriptors were used in this report. A descriptor was operationally defined as three statements pertaining to the standard score, percentile rank, and classification level achieved on a particular domain of functioning. Similar to the SMA report, there were two versions of this report that varied across academic subjects (i.e., science and social studies).

TRQ. All participants were asked to fill out the TRQ after reading each report. This 10-item questionnaire was based on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Each item began with the phrase "This information will be helpful for . . ." and concluded with statements about improving the student's academic functioning (e.g., test performance, homework completion) as well as enhancing important professional-oriented processes and activities (e.g., instructional planning, parent-teacher conferences) (see Table 1). High scores on this measure reflect positive teacher attitudes about the potential usefulness of the assessment information. This scale was developed to reflect important school outcomes such as class performance, test performance, and homework completion as well as roles that teachers typically have in schools. Content-validity information was gathered from pilot testing with four special education teachers who had a minimum of 10 years of teaching experience. They were instructed to critique the scale in terms of readability and relevance of the items for either student-related outcomes or their roles as a teacher. The original scale included 12 items, but 2 items were discarded due to teacher disagreement about item relevance to student outcomes or teacher responsibilities. In addition, several of the items were reworded to improve readability and clarity. Cronbach's alpha for the entire 10-item scale across the two report conditions was calculated based on the total sample size ($N = 96$). The coefficient value for the SMA condition was .90 while the coefficient value for the SNRA condition was .88, both indicating an acceptable level of item homogeneity.

Perceived familiarity. A one-item scale was developed to measure the teachers' familiarity with the information included in each report (i.e., "This information is similar to the information that I typically receive about students from psychoeducational evaluations or from Individualized Educational Programs"). This measure was based on the same 5-point Likert scale used for the TRQ. High scores on this item represent high familiarity with the assessment information while low scores reflect infrequent exposure to the information.

Table 1
Teachers' Mean Responses and SDs Across SMA and SNRA Reports for Each Item on the TRQ

TRQ Question	SMA		SNRA		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Stem: This information is helpful for . . .					
1) . . . improving John's awareness of the factors causing him to struggle in science	4.2	0.76	3.1	1.09	8.7*
2) . . . providing feedback that can enable John to improve his performance in science	4.3	0.67	3.1	0.97	10.4*
3) . . . developing strategies to improve John's skill in managing the demands and requirements of science tests	4.2	0.71	3.0	1.04	9.9*
4) . . . developing strategies to improve John's performance on his science tests	4.2	0.77	3.1	1.01	9.3*
5) . . . developing strategies to improve John's skill to complete science homework assignments on time	4.0	0.83	2.5	0.97	11.6*
6) . . . planning and conducting one-on-one extra help sessions in science with John	4.2	0.84	3.2	1.02	8.3*
7) . . . designing instructional plans to best meet John's academic needs in science	3.9	1.00	3.4	0.93	3.5*
8) . . . enhancing the quality of parent–teacher conferences about John	4.2	0.81	3.2	1.02	8.1*
9) . . . enhancing the quality of discussions about John at Instructional Support Team meetings	4.4	0.62	3.6	0.96	7.4*
10) . . . enhancing the quality of consultations with school psychologists about John	4.1	0.73	3.5	0.89	4.8*

Note. The mean scores were based on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*).

* $p < .001$.

Design and Procedures

This study utilized a mixed model design, which included one within-subject factor and two between-subjects factors. The within-subject factor was type of report (i.e., SMA and SNRA). All participants were given both reports and were asked to fill out the TRQ following reading each report. The two between-subject factors included presentation order and academic content. These two variables were included to control for order effects and to enhance the external validity of the results across content matter, respectively. All 96 participants were randomly assigned to one of four conditions (i.e., 24 participants in each condition), based on the presentation order and the academic subject variables: SMA-Science, SMA-Social Studies, SNRA-Science, and SNRA-Social Studies. The SMA-Science group was asked to read the SMA report (i.e., written with respect to science class), complete the TRQ, read the SNRA report (i.e., written with respect to science class), and then complete another TRQ. The SMA-Social Studies group members received the assessment reports and TRQ in the same sequence, but were given reports written in terms of social studies. In contrast, the SNRA-Science (i.e., written in terms of science) and SNRA-Social Studies groups (i.e., written in terms of social studies) both received the SNRA before the SMA report. They also were asked to complete the TRQ after reading each report.

The primary author read a set of standardized instructions to all participants during faculty or department meetings. After the investigator answered all questions and the participants signed the informed consent forms, they were asked to complete the remaining five pages in the packet in the following order: demographic sheet, an assessment report with a corresponding TRQ, and the other assessment report with a corresponding TRQ. The investigator explained the procedures for filling out the TRQ, emphasizing that the forms were to be completed in the order presented. Participants were instructed not to return to the initial report or TRQ after beginning the second assessment report. There was no time limit for completing these activities.

RESULTS AND DISCUSSION

Table 1 displays the means and standard deviations of the teacher responses to all 10 items on the TRQ. A preliminary analysis to assess mean differences on the TRQ measure across demographic variables such as ethnicity, years of special education teaching experience, and level of educational training was conducted using one-way ANOVAs. The results revealed no significant differences across these demographic variables.

TRQ Differences Across Type of Report

A $2 \times 2 \times 2$ (Report Type \times Presentation Order \times Academic Subject) mixed models ANOVA was used to evaluate the effects of report type (i.e., SMA and SNRA) on teacher TRQ ratings. Statistical analysis showed that there was a significant main effect for report type, $F(1,92) = 158.9, p < .01$. Thus, special education teachers rated the SMA report as being more helpful ($M = 41.7$) than the SNRA report ($M = 31.6$) for improving student functioning (e.g., test performance) and professional-related processes and activities (e.g., parent-teacher conferences). Separate paired t tests were conducted for each item on the TRQ to further examine the pattern of teacher ratings. All items reached statistical significance at the .001 level, with the SMA report being rated as more useful than the SNRA report in each instance. Although these findings are clear, it is important to note that one should not conclude that the teachers viewed the SNRA data as irrelevant or contributing little to understanding the needs of a particular child. The average SNRA rating for each item of the TRQ (i.e., except Item 5) was equal to or greater than 3.0 [i.e., based on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*)]. Thus, the average teacher response was on the "positive" side of the scale, suggesting that they perceive the SNRA as having at least some value and utility when planning how to best meet students needs.

A paired t test was used to calculate the difference between teachers' perceived familiarity with both SMA and SNRA information. The results revealed a significant difference, $t(94) = 12.17, p < .01$, with the SNRA being rated as more similar ($M = 4.1$) to the information they typically receive about students than the information provided by the SMA report ($M = 2.2$). Taken together with the perceived usefulness findings, an important conclusion is that teachers viewed the context-specific SMA report as having potentially greater instrumentality and utility for intervention planning, but are usually not provided with this information. Interestingly, these results parallel recent trends in special education and school psychology; namely, linking context-specific alternative assessment methods with intervention planning and development (President's Commission on Excellence in Special Education, 2002; Reschly & Ysseldyke, 2002). Thus, it seems reasonable to speculate that educational evaluators and school psychologists can facilitate the process of intervention development by supplementing their traditional assessment batteries with SMA measures targeting self-regulation, motivation, and learning strategies.

TRQ Differences Across Academic Subject and Presentation Order

The mixed models ANOVA also examined the effects of two between-subject factors: academic subject and report presentation order. Academic subject was included as a crossing variable to enhance generalizability of the findings whereas the presentation order variable was used to examine potential order effects. Although there was no main effect for academic subject, there was a significant main effect for presentation order, $F(1,92) = 13.98, p < .01$, as well as a Presentation Order \times Type of Report interaction, $F(1,92) = 4.82, p < .05$.

The interaction effect revealed that the total TRQ mean difference between SNRA and SMA when each report was presented first was smaller ($M_{\text{diff}} = 6.6$) than when the reports were presented during the second trial ($M_{\text{diff}} = 13.5$). Although the presence of an order effect is usually

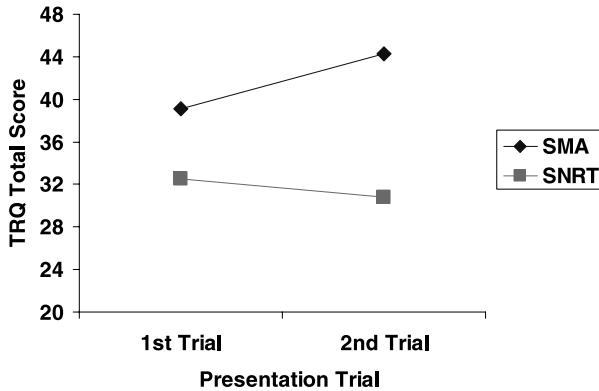


FIGURE 1. Interaction effect between type of report and presentation order.

not desirable when using a within-subjects design, close inspection of the interaction effect in this study appears to further underscore teachers' positive perceptions of the SMA report and highlights the advantage of using repeated measure designs in assessment acceptability studies. For example, as can be seen in Figure 1, when the SMA was presented first, the mean TRQ score for the SMA condition was 39.1; however, when the SMA followed the SNRA report, the SMA ratings *increased* to 44.3. In contrast, the mean TRQ score for the SNRA condition was 32.5 when the SNRA report was presented first, but *decreased* to 30.8 when the SNRA followed the presentation of the SMA report. Thus, ratings of the SMA report were enhanced after having first viewed the SNRA while ratings of the SNRA were slightly diminished after having first viewed the SMA.

LIMITATIONS AND AREAS FOR FUTURE RESEARCH

The current study possesses a few limitations that are typical in analog research (Eckert & Shapiro, 1999). For example, the case descriptions used in this study were not entirely representative of the reports generated by most school psychologists. That is, both case reports were short (i.e., one page) and did not provide detailed information about the student's family background, academic history, socioemotional functioning, or relevant medical issues. In addition, they were limited to either a couple of norm-referenced tests (i.e., WISC-III and WIAT-II) or only a sampling of study and self-regulation strategies/processes. Another limitation with regard to the external validity included sample homogeneity (e.g., 97% Caucasian, 87.5% female, three suburban school districts).

Future research should explore whether the current results will generalize across different settings (i.e., urban) and teacher variables (e.g., ethnicity, type of teacher certification). In addition, future research should utilize more practical, authentic cases in the research design. For example, it might be interesting to investigate teachers' skill in using authentic SMA information to facilitate intervention planning with their students. Finally, given that assessment continues to constitute a key role of school psychologists, it is important for researchers to examine school psychologists' perspective on the utility and value of the SMA approach.

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