Effects of Instructional Rubrics on Class Engagement Behaviors and the Achievement of Lesson Objectives by Students with Mild Mental Retardation and Their Typical Peers

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Abstract: Aligning standards and individual needs of students with disabilities has been emphasized as a prerequisite for the students’ access to, and meaningful progress in, the general curriculum. As inclusive assessment tools, instructional rubrics are believed to have potential in effectively linking standards and the Individualized Education Program (IEP) goals of students with disabilities and in enhancing self-directed learning of all students involved with the in-depth application during class. This study examined the effects of instructional rubrics on class engagement behaviors and the achievement of lesson objectives by students with mild mental retardation and their same-age peers. The results demonstrated that class engagement behaviors of the students with mild mental retardation drastically improved. The achievement of lesson objectives by all the participants evaluated through rubrics was statistically significant. Implications for practitioners and for future researchers were also discussed.

Inclusive education already has been a solid option for the education of students with special needs. Similar with the statistics in the U.S. that almost half of all students with disabilities ages 6 through 21 served under the Individuals with Disabilities Education Act (IDEA) are educated for most of their school day in the regular classroom (U.S. Department of Education, 2007), the counterpart in Korea constitutes up to 63% in 2007 (Korea National Institute of Special Education, 2007). With the current registration of the No Child Left Behind Act of 2001 (NCLB), the population has been challenged to make meaningful progress through access to general education beyond simply engaging in it (Kleinert & Thurlow, 2001; Wehmeyer, Lattin, Lapp-Rincker, & Agran, 2003). The mandate of having students with disabilities in inclusive assessment for the evidence of academic achievement has become a challenge with respect to addressing their individual needs in the general curriculum while keeping the content of the curriculum intact.

For students with disabilities to be successful in inclusive assessment, individualized education program (IEP) goals of the students should be reasonably aligned with standards of the general curriculum, followed by consistent progress monitoring through formative assessments that are carefully developed with consideration of goals and daily instruction (Fisher & Frey, 2001; Klinger & Vaughn, 1999). For example, performance of students with disabilities could be accurately evaluated with the validity of the assessment maintained only when the same adaptation methods were available during the assessment as were in instruction (e.g., Edgemon, Jablonski, & Lloyd, 2006; Ysseldyke et al., 2001). However, there is a strict contrast when it comes to reference of assessment as typical academic assessment for students with disabilities is individual-refer-
enced based on IEP goals, whereas regular students are evaluated by criterion-referenced methods based on standards of the general curriculum (Nolet & McLaughlin, 2000). If the performance criterion for students to target during class is specified based on standards, it would make the process to set an individual but standards-based goals for students with disabilities and for them to effectively participate in inclusive assessment clearer. Instructional rubrics seem to have potential to effectively align IEP goals with standards as a criterion-specific assessment as well as to be closely related to ongoing instructional practices (Glatthorn, Braqaw, Dawkins, & Parker, 1998).

With more highlighted instructional functions in rubrics, which are evaluation tools with standards-based criterion and scales of various performance levels, instructional rubrics can be utilized as an instructional tool or used in the process of informed feedback on the progress of students and in-depth evaluation on the final work (Andrade, 2005). Instructional rubrics are suggested as an alternative way for progress monitoring of IEP goals of students with disabilities (Etscheidt, 2006); they feature distinct twofold elements as follows: First, instructional rubrics enable student-centered assessment represented by its self-assessment feature through better awareness of what are expected from instruction. For example, many research utilizing instructional rubrics have reported the positive effects on students’ increased responsibility for their own learning and cooperative relationship between teachers and students (Shepard, 2000; Skillings & Ferrell, 2000), enhanced empowerment on evaluation (Han & Lee, 2004; James, Abbot, & Greenwood, 2001), and active self-/colleague-assessment on both learning process and outcomes (Andrade & Boulay, 2003; Barry & Moore IV, 2004; Saddler & Andrade, 2004). As a support strategy for self-directed learning, instructional rubrics are combined with graphic organizers and process-composition model (James et al.), and are utilized along with self-directed organizational strategy instruction for writing competency tests (Barry & Moore IV). It requires attention that exact awareness of learning goals and performance criterion, alongside with self-assessment, is essential to lead to self-regulation of students while engaging in learning activities (Andrade & Boulay).

Second, instructional rubrics can be flexibly applied to a wide range of students with diverse needs (Smith, Brewer, Heffner, & Algozzine, 2003; Whittaker et al., 2001). It might be because it is easier to establish an objective performance criterion, which enables every student involved to target if the goals of instruction to be accomplished through certain tasks are explicit with the possible differentiation or accommodations for individual students with disabilities. Actually, not only typical students but students with disabilities could effectively learn various subjects and learning skills using rubrics (eg. Finson & Ormsbee, 1998; Loeffler, 2005; Schirmer & Bailey, 2000), and their applicability has been extended from young children (Byan & Hyon, 2005) to college students (Pindiprolu, Lignugaris/Kraft, Rule, Peterson, & Slocun, 2005). For example, Loeffler implemented instructional rubrics for spelling instruction for students with learning disabilities and found that they were useful as a tool to enhance intended lesson objectives through self-assessment and discussion about their ongoing progress. A group of students with hearing impairments also improved their writing skills using a rubric (Schirmer, Bailey, & Fitzgerald, 1999). According to James and colleagues (2001), instructional rubrics can be applied as an instructional strategy for students with disabilities in inclusive classrooms with the use of guidance towards developing needed accommodations for individual students, and make the IEP process including the indicators of the student’s progress in the general curriculum run more efficiently (Stanford & Siders, 2001).

In South Korea, as many as 80% of the students with disabilities in inclusive settings, who are mainly working on general curriculum-irrelevant-IEP goals, are excluded from both formal and informal assessment in the regular classroom (Kim, Kwon, Kim, & Park, 2003). Moreover, the results of performance tests based on IEPs typically done by special education teachers either in a resource room or in a self-contained class are rarely reported to the principal or administrators in charge (Shin, 2005); thus there is no accountability check of the related personnel for the stu-
students’ adequate academic progress in inclusive settings. With more than 50% of general education teachers who currently have students with disabilities in their class never having seen IEPs developed for the students (Kim et al.), even in the case where IEPs are standards-related, it cannot be guaranteed that the students could proceed towards a meaningful academic achievement through accessing the general curriculum and getting proper support. Meanwhile, the research on assessment for students with disabilities focuses on either diagnosis-related issues (e.g., Han & Park, 2004) or tests for students in special schools (e.g., Kim & Kim, 2004), leaving few empirical studies for those students to successfully participate in inclusive assessments.

In practice, regarding the assessment for regular elementary school students, apart from the guidelines written in the state-level curriculum, a specific criterion on targeted ‘concepts’ or ‘generalization’ of each subject standard is much needed across contents (M. Lee, 2004). Therefore, it might benefit all students involved if instructional rubrics with a specific criterion are carefully developed in the light of universal design for learning (UDL; Rose & Meyer, 2006) and applied for daily instruction in inclusive classrooms with diverse learners. Based on such needs in the field, this study examined the effects of instructional rubrics on class engagement behaviors and the achievement of lesson objectives by students with mild mental retardation and their typical peers.

Method

Participants

Three students with mild mental retardation in grades five and six participated in the study. The range of IQ score of the participants was from 57 to 59 on the Korean-Wechsler Intelligence Scales for Children-III (Kwak, Park, & Kim, 2001). All participants were reportedly in need of improving basic class engagement behaviors to make progress in the general curriculum.

Student 1 was a twelve-year-old male student in the sixth grade with a full scale IQ of 57. Based on the curriculum-based measurement, he could read and write short sentences with three to four simple words, but demonstrated difficulties in comprehension of complicated words and paragraphs. During the pre-baseline observation, he barely showed interest in class, spending most of the time scribbling on or folding the paper, with no textbook or material prepared on the desk.

Student 2 was an eleven-year-old male student in the fifth grade with a full scale IQ of 59. Though producing some errors, he could read and write sentences with four to five words in various formats based on the curriculum-based measurement, and demonstrated relative strengths in reading comprehension. During the pre-baseline observation, he prepared the textbook and looked at the teacher or other students from time to time; however, when asked to participate in the activity, he became extremely shy lowering his head and not even moving a finger.

Student 3 was an eleven-year-old male student in the fifth grade with a full scale IQ of 58. Based on the curriculum-based measurement, he could read and write short sentences with three to four simple words, but demonstrated difficulties in comprehension of complicated words and paragraphs. During the pre-baseline observation, he scarcely showed interest in class, laying down his head on the desk most of the time, with no textbook or material prepared.

The typical peers of the inclusive classes in which these three participants with mild mental retardation were studying and three teachers of the classes also participated in the study. Class 1 in which Student 1 was enrolled had 30 students without disabilities, 29 in Class 2 of Student 2, and 29 in Class 3 of Student 3. All of the teachers were female and their teaching experience in the field ranged from 6 to 18 years.

Setting

Both training and intervention took place in the regular classroom of each group of participants. In addition, the setting for extra training given to the students with mild mental retardation was a resource room where they were educated partly during the day.
Based on related studies (Hall & Salmon, 2003; Whittaker et al., 2001), the instructional rubric for this study was developed to target individual but standards-based lesson objectives for students with mild mental retardation, and standards-based lesson objectives on the Korean language for typical students. Specific components of the two-page-long rubric were: 1) standards-based lesson objectives for typical students and standards-related but individually accommodated lesson objectives based on IEP goals for students with mild mental retardation; 2) levels of performance criterion (four levels for typical students; three for students with mild mental retardation); 3) examples of performance indicators for each level that represent the characteristics to which the assessment task should pertain; and 4) section for self-assessment. Individual lesson objectives for students with mild mental retardation specified the levels of content and process standards of Korean language for a specific grade, which were related to the students’ IEP goals, led by analyzing the fundamental functions of targeting standard (Hoover & Patton, 2004; Wehmeyer, Lance, & Bashinski, 2002).

Students with mild mental retardation received an ‘on-task-rubric-application-form’ on a daily basis along with the rubric. The form contained specific task-related objectives based on individual lesson objectives on the rubric, questions for self-monitoring on class engagement behaviors, and a section for self-evaluation and teacher-check. A set of rubrics, including an on-task-rubric-application form, were provided to all students in the inclusive class so that typical students could be informed about individual lesson objectives and instructional support for the students with mild mental retardation.

Initially developed rubrics went through a content validity check by one general education teacher and one special education teacher, each holding a master’s degree, based on ‘guidelines for reviewing quality of instructional rubrics’ (Stiggins, 2005), and 12 rubrics, four for each class, were finally implemented for intervention.

### Data Collection Procedures

**Dependent variables.** Two dependent variables were measured in the study. First dependent variable was class engagement behaviors of students with mild mental retardation. Class engagement behaviors consisted of four subcategories (listen to lecture, take down notes, work with peers, work independently) under the operational definitions, which are indicated in Table 1. Using the 15 min-partial-interval recording method, the target behaviors were observed for 25 min. during class after five to six min. passed from the beginning of the class. The occurrence of the behaviors was calculated by dividing the number of intervals that the behaviors occurred with the total number of the intervals and multiplying it by 100. The second dependent variable was performance level of class objectives of all participants. Until the students with mild mental retardation reached the intervention termination criterion, which was more than 80% of occurrence of the target behaviors in three consecutive sessions, four instructional

### Instrument

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### Table 1

**Definition of Target Behaviors by Four Subcategories**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listen to a lecture</td>
<td>Look at a teacher who is speaking with attention or behaviors that are related with the ongoing lecture (e.g., answer a teacher’s question, look at other students who are answering a teacher’s question, or ask a question)</td>
</tr>
<tr>
<td>Take down notes</td>
<td>Write down what a teacher wrote on the board or delivered to students verbally</td>
</tr>
<tr>
<td>Work with peers</td>
<td>Work on a task or an activity together with one or more peers (Peers provide physical, verbal, or material support)</td>
</tr>
<tr>
<td>Work independently</td>
<td>Work on a task or an activity which is related (same or similar) with the ongoing class (e.g., reading, writing, speaking, manipulating, or presenting)</td>
</tr>
</tbody>
</table>
rubrics were applied to each class. All participants assessed their own performance level in the lesson objectives using the rubrics (1–4 points for typical students; 1–3 points for students with mild mental retardation) before and after the intervention of each rubric was implemented. The data were analyzed with SPSS for Windows 12.0 program using paired-samples t-test.

Interobserver agreement. Before the actual agreement check, the second observer who has a master’s degree on special education and the first author practiced to reach an agreement of over 90% on the observation of the target behaviors by watching the videotaped data. The interobserver agreement counted for 25% of data randomly chosen across the intervention conditions ranging from 94.3% to 95.2%.

Social validity data. Teachers of the three classes and six typical students, two from each class, were asked for the social validity data. Using a questionnaire with a five-point Likert scale, the mean scores of the answers of teachers are as follows: significance of the target behaviors (5), participation in the intervention (4.3), outcomes from the intervention (4.6), standout of disability (1.6), usability of the intervention (4.3), and efforts needed for the intervention (3.6). The typical students who participated in a 10- to 15-min. long semi-organized interview perceived a positive change on both students with mild mental retardation and themselves, such as exact awareness of class objectives and their performance level and increased participation in class of students with mild retardation.

Treatment fidelity. For 25% of the intervention sessions, treatment fidelity of participating teachers and typical students was assessed on six items organized into three sections: 1) reminding the class of the objective written on a rubric or a rubric-application-form; 2) giving prompts for participation in class to the student with mild mental retardation; and 3) monitoring self-assessment of performance using the rubric. The mean scores ranged from 5.2 to 5.75 out of 6 points.

Experimental Design and Procedure

Class engagement behaviors of students with mild mental retardation. In order to examine the effects of instructional rubrics on class engagement behaviors of students with mild mental retardation, a single-subject multiple probe across participants design was employed (Tawney & Gast, 1984).

Baseline. During baseline, the class engagement behaviors of the participants were observed for 25 min. during Korean language class, while the students were given no special support or prompts for participation and the teachers led the class in the usual way. The probes were administered after the baseline was stable for at least three sessions before intervention was implemented.

Intervention

Training for teachers. The teachers of inclusive classes received two instructional sessions, each lasting approximately 40 min. During the first session, the purpose of the study and important elements of the intervention, such as instructional rubrics, IEP goals, and curricular accommodations for students with disabilities, were explained. During the second session, they were informed about the process of developing the instructional rubric with individual lesson objectives for students with disabilities along with general lesson objectives for typical learners (though the researchers developed the instructional rubrics used for the intervention). The practices they need to perform during class implementing the rubrics were then taught as follows: 1) remind both general lesson objectives and individual ones for students with mild mental retardation; 2) provide the students with mild mental retardation prompts to participate in class, if needed; and 3) ask all the students to evaluate their performance using the rubric.

Training for all students. The typical students of inclusive classes and tree students with mild mental retardation received four instructional sessions together, each lasting approximately 20 to 40 min. During the first session for 40 min. before the intervention began, the instruction started with the introduction of instructional rubrics and the need for individual lesson objectives for the students with mild mental retardation. Based on the suggestions of related studies (Hall & Salmon, 2003; Whittaker et al., 2001), the participants had exercises on evaluating their own performance or current status according
to the criteria in the rubric by comparing them with examples of each level of performance. At the designated section on the rubric, they were asked to write down the result and the specific performance indicator to focus on during the next class. Additionally, the peers who sat next to or were in the same group with the student who has mild mental retardation were taught to check the individual lesson objectives from the on-task-rubric-application form together with the student in need; they then monitored whether the student did the self-evaluation of performance on the rubric.

After finishing a unit using each rubric, the students received another instructional session for approximately 15 min. each. They shared a couple of good examples among the student rubrics that specified things to improve on in detail based on the self-evaluation of performance, which were mutually picked by the researchers and the teacher of the class; they also discussed how the students with mild mental retardation had performed so far.

Extra training for students with mild mental retardation. In addition to the training for all student participants, students with mild mental retardation received six extra instructional sessions, lasting approximately 20–30 min. each. Based on King-Sears and Carpenter (1997), the instruction consisted of three stages: 1) understanding target behaviors; 2) understanding a self-monitoring/assessment tool; and 3) practicing and evaluating mastery of the usage. During the first session, the students were taught to differentiate target behaviors from non-target behaviors by watching video clips of the students and their peers in class or using work samples. Target behaviors were examples of excellent performance indicators on the rubric that represented lesson objectives as well as basic class engagement behaviors, which will enable the students to achieve the lesson objectives.

During the second session, the students were taught how to use the rubric and the on-task-rubric-application form for self-assessment of performance. The first author modeled the steps of self-assessment as follows: 1) check the lesson objective and on-task objective; 2) participate in class as informed by the objective; 3) check the lesson objective and on-task objective again; 4) monitor their own performance according to the questions on the application form; and 5) evaluate performance with the level on the rubric and choose a performance indicator to improve on for the next class. The students then practiced those steps with the researcher’s guidance and feedback. The third instructional session consisted of independent practice of the self-assessment steps taught in the previous session and the evaluation of mastery of their usage. Based on the evaluation results, the students received corrective feedback and practiced specific steps repeatedly. Three additional instructional sessions consisting of the differentiation of new target behaviors and the practice of self-assessment steps using rubric were provided one by one just before a new rubric was applied.

Additional support for students with mild mental retardation during class. During Korean language class, the students with mild mental retardation received additional support such as the on-task-rubric-application form where a task-related objective and behavior monitoring questions were specified alongside with needed instructional accommodations (e.g., a material with easier level of difficulty). The class teacher then checked the application form right after the class and gave feedback to the student based on the result. The students received guidance from the researcher and the teacher on the process of picking a performance indicator to improve on for the next class. With the chosen indicator considered, the task-related objective and instructional accommodations for the next class were decided accordingly.

Generalization. For generalization of target behaviors, data on those behaviors were collected three times during social studies class under the same condition as the baseline, right after the intervention condition was terminated.

Maintenance. During maintenance condition, data on target behaviors were collected during Korean language class under the same condition as the baseline, a month after the intervention condition was terminated.

Performance Level of Class Objectives of All Participants

In order to examine the effects of instructional rubrics on the achievement of class ob-
jectives by all participants, a pre-/post-test design on the performance level of lesson objectives through self-assessment by the participants was employed. Before and after each rubric was applied to Korean language class, the students assessed their own performance level of lesson objectives using the rubric, resulting in four pre-/post-test scores. Students with mild mental retardation reviewed the assessment result with the researcher and the teacher before they put their final scores on the rubric.

Results

Class Engagement Behaviors of Students with Mild Mental Retardation

Results indicated that the intervention of implementing instructional rubrics in Korean language class was effective in improving class engagement behaviors of all participants with mild mental retardation (See Figure 1). As demonstrated in Figure 2, the overall occurrence of the three subcategories of target be-
behaviors, except ‘take down notes’ category, substantially improved, especially ‘work independently’ category, which dramatically increased across all conditions. The occurrence of class engagement behaviors of Student 1 increased to an average of 71.6% (range
49.0% to 92.0%) during intervention phase from an average of 5.3% (range 4.0% to 6.0%) during baseline. Among the subcategories of behaviors, ‘work independently’ category took the highest stage with an average of 37.1% during intervention from 0% during baseline, followed by ‘work with peers’ category (1.0% to 17.9%) and ‘listen to a lecture’ category (4.3% to 18.9%). Starting with the 70% of sudden hype during the first session of intervention, Student 2 demonstrated an increase on the target behaviors from an average of 25.8% (range 19.0-31.0) during baseline, followed by ‘work with peers’ category (1.0% to 17.9%) and ‘listen to a lecture’ category (4.3% to 18.9%). Starting with the 70% of sudden hype during the first session of intervention, Student 2 demonstrated an increase on the target behaviors from an average of 25.8% (range 19.0-31.0) during baseline, followed by ‘work with peers’ category (1.0% to 17.9%) and ‘listen to a lecture’ category (4.3% to 18.9%). Starting with the 70% of sudden hype during the first session of intervention, Student 2 demonstrated an increase on the target behaviors from an average of 25.8% (range 19.0-31.0) during baseline, followed by ‘work with peers’ category (1.0% to 17.9%) and ‘listen to a lecture’ category (4.3% to 18.9%). Starting with the 70% of sudden hype during the first session of intervention, Student 2 demonstrated an increase on the target behaviors from an average of 25.8% (range 19.0-31.0) during baseline, followed by ‘work with peers’ category (1.0% to 17.9%) and ‘listen to a lecture’ category (4.3% to 18.9%). Starting with the 70% of sudden hype during the first session of intervention, Student 2 demonstrated an increase on the target behaviors from an average of 25.8% (range 19.0-31.0) during baseline, followed by ‘work with peers’ category (1.0% to 17.9%) and ‘listen to a lecture’ category (4.3% to 18.9%). Starting with the 70% of sudden hype during the first session of intervention, Student 2 demonstrated an increase on the target behaviors from an average of 25.8% (range 19.0-31.0) during baseline, followed by ‘work with peers’ category (1.0% to 17.9%) and ‘listen to a lecture’ category (4.3% to 18.9%).

During generalization, though the overall occurrence of the behaviors relatively decreased from last session of the intervention condition, all students averaged around 70% (range 69.3% to 77.7%). This is attributed to ‘listen to a lecture’ category (range 27% to 40%) and ‘work independently’ category (range 26% to 36.7%).

On the maintenance probes four weeks after the intervention was terminated, all students maintained the improved class engagement behaviors with an average above 75% (range 75.3% to 78%), contributed primarily by ‘work independently’ category (range 20% to 49.7). Interestingly, Student 1 and Student 2 demonstrated a high occurrence rate in ‘work with peers’ category with an average of 20.3% and 24%, respectively, across all conditions.

Performance Level of Lesson Objectives of All Participants

As indicated in Table 2, the mean score of all three classes increased from 1.6(SD = 0.29) for Class 1, 1.48(SD = 0.28) for Class 2, and 1.78(SD = 0.22) for Class 3 in the pre-tests to 2.95(SD = 0.45), 3.25(SD = 0.35), and 3.47(SD = 0.31), respectively, in the post-tests, and the differences were statistically significant (p < .001). With the consideration that the performance level of lesson objectives for all participants significantly increased, the intervention of applying instructional rubrics to the Korean language class was effective on the achievement of targeted lesson objectives by the participants.

Discussion

This study intended to examine the effects of instructional rubrics on class engagement behaviors and the achievement of lesson objectives in the Korean language class by students with mild mental retardation and their typical peers. The results demonstrated that class engagement behaviors of all participants with mild mental retardation drastically improved, and the improved behaviors were generalized and maintained after the intervention was terminated. The difference in performance levels on lesson objectives for Korean language class for all participants before and after the

TABLE 2
Changes of Performance Level of Lesson Objectives

<table>
<thead>
<tr>
<th>Class</th>
<th>M BEFORE</th>
<th>M AFTER</th>
<th>SD BEFORE</th>
<th>SD AFTER</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>1.60</td>
<td>2.95</td>
<td>0.29</td>
<td>0.45</td>
<td>18.214*</td>
</tr>
<tr>
<td>Class 2</td>
<td>1.48</td>
<td>3.25</td>
<td>0.28</td>
<td>0.35</td>
<td>23.515*</td>
</tr>
<tr>
<td>Class 3</td>
<td>1.78</td>
<td>3.47</td>
<td>0.22</td>
<td>0.31</td>
<td>33.561*</td>
</tr>
</tbody>
</table>

* p < .001
intervention was shown to be statistically significant in all three classes.

Impact on Class Engagement Behaviors of Students with Mild Mental Retardation

The improvement on class engagement behaviors of the participants with mild mental retardation can be considered as a meaningful progress because ‘engagement’ in a regular class has been emphasized as a prerequisite for students to achieve individual academic goals through access to the general curriculum (Cushing, Clark, Carter, & Kennedy, 2005; Wehmeyer et al., 2003). The result indicates that the rubrics functioned as an instructional guide on learning for the students as suggested by previous studies (e.g. Andrade & Boulay, 2003; Lee & Lee, 2006; Loeffler, 2005). Specifically, by utilizing instructional rubrics, the participants could be better aware of lesson objectives they were targeting and could systematically manage self-monitoring of their own performance during class. Although it demands, as the first step for students with disabilities, to successfully learn in inclusive settings (Prater, 2003), the participants were either explicitly informed about individual lesson objectives they were expected to target or provided accommodated tasks or materials in line with the objectives. The positive result of implementing instructional rubrics, especially on ‘independent work’ category, is not only supported by the related research that suggest the effectiveness of instructional rubrics as a strategy for self-directed learning (Andrade & Boulay; Hall & Salmon, 2003; James et al., 2001), but also underscores the significance of exact awareness of lesson objectives and self-monitoring/evaluation of performance for students with disabilities to learn successfully in an inclusive class (Copeland & Hughes, 2002; Grossi & Heward, 1998).

Furthermore, more specific and goal-oriented support provided by typical peers to the participants with mild mental retardation under the awareness of the participants’ individual lesson objectives might contribute to the positive result. All three participants improved in ‘work with peers’ category at least more than 10% during intervention, and the increased behavior was maintained with a higher occurrence rate than the one during the intervention for Student 1 and Student 2. As related studies reported that cooperation among students was enhanced through specific colleague evaluation and informed feedback on performance using rubrics (Schirmer et al., 1999; Smith et al., 2003), having individual objectives and performance monitoring questions for the participants with mild mental retardation specified in the inclusive assessment tool might lead to efficient and consistent peer support for the participants during class rather than spontaneous or un-systematic ones. For instance, as the intervention progressed, it was observed that the peers of Student 2 and Student 3 actively recognized the two students’ participation in class activities and voluntarily involved them in a cooperative task. It can be analyzed that the peers’ overall expectation for the participants with mild mental retardation went higher as they noticed the improvement on class engagement behaviors of the participants working on tasks for individual but standards-based lesson objectives (Cha, 2002; McDonnell, McLaughlin, & Morrison, 1997). Exposure to specific ways to support the participants with mild mental retardation, such as instructional adaptations and self-monitoring questions, might also contribute to the natural empowerment of peers in terms of cooperative work with students with disabilities.

Impact on the Achievement of Lesson Objectives by All Participants

The positive result on the achievement of lesson objectives by all participants, including students with mild mental retardation, by implementing instructional rubrics extends the findings of previous studies that reported the effects of instructional rubrics on performance in various subjects (Andrade & Boulay, 2003; Barry & Moore IV, 2004; Goodrich, 1996; James et al., 2001; Loeffler, 2005; Shirmer et al., 1999). Moreover, it highlights its implication as an ultimate outcome for students with disabilities in inclusive settings beyond just ‘engaging’ in the general curriculum (Clayton, Burdge, Denham, Kleiner, & Kearns, 2006; Cushing et al., 2005). The positive influence on achievement for all participants, not only for the participants with mild...
mental retardation, also points out that carefully designed and executed instructions for students with disabilities can be beneficial for all the students involved (S. Lee, 2004; McDonnell et al., 1997; O’Connor & Jenkins, 1996).

Specifically, exact awareness of lesson objectives and regular self-evaluation through the rubric might make a positive impact on the achievement of lesson objectives by all participants. This result demonstrates that appropriate progress monitoring by students based on their awareness of learning goals is closely related with enhancing academic achievement (Deno, 2003; Fuchs & Fuchs, 1986), and extends the suggestion that instructional rubrics, especially with self-evaluation of performance, can function as a stepping stone that assists students to self-regulate over learning activities (Andrade & Boulay, 2003; Saddler & Andrade, 2004; Shepard, 2000). In addition, individual support for students with disabilities to successfully participate in an inclusive assessment was specified in this study. For example, the participants received extra training for self-monitoring/evaluation to utilize instructional rubrics before the intervention in addition to the regular training for all participants. During the intervention, instructional accommodations in objectives, materials/activities, and scoring system were provided along with an aid for performance monitoring and feedback on the result using an application form. Considering the need for ‘special support’ for students with disabilities to achieve meaningful progress in the general curriculum even in cases when a universal design of leaning is employed (McGuire, Scott, & Shaw, 2006; Wehmeyer et al., 2005), these additional training and support employed for the participants can be suggested as necessary elements to consider in utilizing instructional rubrics as an inclusive assessment for diverse learners.

There are some limitations to be noted in the study. First, the participants were students with mild mental retardation and their typical peers in elementary grades. Thus, the results of the study might not be generalized to other students with different disabilities and their peers or those from different age groups. Second, this study employed the participants’ self-evaluation on their own performance level and it may not exclude the possibility that the result of self-evaluation might not be the same as the real performance level of the participants.

Despite the limitations, this study presents several implications for future research and practice. It suggests the utility of instructional rubrics not only as an inclusive class-wide assessment tool, but also as an instructional strategy that systematically assists students with disabilities to make meaningful progress in the general curriculum. Specific considerations to address individual needs of students with disabilities demonstrated in the study will guide practitioners to design and implement an inclusive assessment for diverse learners to successfully participate in with appropriate support. In the future, research is needed to implement an instructional rubric on students with various disabilities and from different age groups. Additionally, employing a control group for comparison would make an elaborate analysis of the effects of an instructional rubric on the achievement of certain objectives possible.

References


Copeland, S. R., & Hughes, C. (2002). Effects of


Nolet, V., & McLaughlin, M. J. (2000). *Accessing the


