

Using formative assessment to improve writing skills

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Abstract

Using a quasi-experimental design, this study examines the effect of using formative assessment, specifically the use of rubrics, to improve the writing and writing self-efficacy of Primary 3 female students in Singapore. Findings indicated that the intervention group students had higher self-efficacy scores compared to the comparison group students. Significantly higher scores were reported for confidence in writing an interesting story, in using details to support ideas, and in correctly using writing conventions. Positive changes in content writing scores were found among the intervention group students. Findings from interviews with the students showed that they supported the use of rubrics. Future research could investigate the use of rubrics to improve the writing self-efficacy and performance of boys, and boys and girls from different primary schools.

Introduction

Formative assessment has been increasingly used in school to improve student learning. In particular, research on the use of rubrics for formative assessment has received more interest in recent years (Panadero & Jonsson, 2013). The use of rubrics as an instructional tool enables teachers to support student learning as well as assess student work (H. Andrade, 1999). Rubrics help students know what teachers expect in terms of quality of work as they provide gradations of quality for each criterion. Andrade (2001) noted that instructional rubrics had the following features that support student learning:

- a) they are written in language that students can understand;
- b) they define and describe quality work;
- c) they refer to common weaknesses found in students' work and show how such weaknesses can be avoided; and
- d) they can be used by students to assess their own work as they write and thus they guide revision and improvement.

In a review of the use of rubrics for formative assessment purposes, Panadero and Jonsson (2013) have found that rubrics have a potentially positive effect on student learning. However, they noted that most studies examining the use of rubrics in the classroom have also combined

the use of rubrics with other instructional interventions such as self-regulation, self-assessment, peer assessment or both. For instance, in a science class, H. Andrade (1999) demonstrated that students who self-assessed their work with the assistance of a rubric outperformed students in the control group. While Brown, Glasswell, and Harland (2004) found great improvement in student writing, as Panadero and Jonsson (2013) pointed out, their study combined the use of a rubric with explicit teaching and modelling, including instruction in meta-cognitive monitoring and scaffolding. Therefore, the results of the intervention were not solely based on the effects of using rubrics.

It has been reported that students found rubrics to be much more useful when the rubrics were given at the beginning of an assignment (H. Andrade & Du, 2005; Schneider, 2006). Schneider (2006) introduced two sets of rubrics to undergraduate students at different points in the course and found that the students preferred the rubric to be handed out with the assignment rather than it being handed out with a final grade. Almost 90% of the students rated useful the rubric that was handed out with the assignment while only 10% found the rubric useful when it was only handed out with a final grade.

There is some evidence that rubric use can promote learning and achievement among primary and secondary students (Andrade, Du, & Wang, 2008; Cohen et al., 2002). Andrade (2005) argued that rubrics could be used as a teaching tool, not just as a tool to evaluate student work.

However, there have been studies where the results were not as straightforward. Andrade (2001), and H. G. Andrade and Boulay (2003) reported that the writing performance of students using a rubric and self-assessment was not always better. Results were mixed and sometimes differed between boys and girls.

Some researchers have investigated the relationship between the use of a rubric and self-efficacy. For instance, H. L. Andrade, Wang, Du, and Akawi (2009) found that regardless of any other condition, if students received a rubric, there was an increase, though not significant, in writing self-efficacy as they progressed through the writing process.

Theoretical framework

The hypothesis of this study is that the use of instructional rubrics for formative assessment has positive effects on student writing and self-efficacy. This hypothesis draws on areas of cognitive and educational research such as self-efficacy, writing pedagogy, and formative assessment. Perspectives on self-efficacy have shown that, even at the elementary level, self-efficacy does play a role in academic achievement (e.g., Pajares, 2003). Self-efficacy describes the belief of an individual that he or she can achieve a specific goal (Bandura, 2003). Pajares (2003) explained that how confident the student was affected what they did, the effort they made, and the persistence and perseverance they exerted when facing difficulties.

Our work is also informed by the social constructivist view of learning and is based on the premise that teachers and students participate in a meaningful process that produces learning and that they share responsibility for learning. Students are seen as actively constructing knowledge, building on their prior knowledge, and developing the metacognitive skills to regulate their learning. Shepard (2000) explained that students needed to understand clearly the criteria by which teachers would assess their work. Students could then use the instructional rubric and exemplars given to them to evaluate their own writing and they would also understand the feedback given by teachers who graded their compositions with the same rubric.

Taken together, theory and research on assessment, self-efficacy and feedback suggest that instructional rubrics have the potential to help improve students' confidence in writing as well as

the quality of their writing.

The purpose of this study was to examine whether formative assessment could be used to improve student writing in early primary grades in Singapore. Specifically, the study sought to examine whether the use of rubrics as an instructional tool would help improve students' confidence and skill in writing.

Methodology

Participants

The study included a convenience sampling of students from four middle-ability Primary 3 classes in an all-girls school in Singapore. Parental consent was sought for students participating in this study. Students whose parents did not give consent were excluded from the study. Sixty-eight students formed the two intervention classes. Sixty-eight students formed the two comparison classes. The classes were selected to be intervention and comparison classes on a random basis. Four teachers were involved in the research. Two teachers, one a beginning teacher with 2.5 years of teaching experience, and another with seven years of experience in teaching taught the intervention classes. One of the two comparison classes was taught by a teacher with 12 years of teaching experience while the other comparison class was taught by another teacher who had 30 years of teaching experience.

Materials

The intervention rubric had specific details and descriptors for each criterion needed to assess student writing. Stars were used to delineate each grading scale. The writing criteria included (a) ideas and content; (b) organisation of ideas; (c) word choice; (d) writing conventions; and (e) sentence fluency. Exemplars were given for each criterion to help the students better understand the assessment requirements.

The exemplars contained writing samples for all four levels of grading for both the content and language sets of criteria. The writing samples were chosen from actual students' compositions written during an examination in the previous year. These exemplars were used by the intervention class teachers when they introduced the use of the intervention rubric in writing.

We designed detailed lesson plans for teachers of the intervention classes. We also designed a procedural checklist to ensure that the teachers in the intervention classes followed the procedures as delineated in the detailed lesson plans. Observers for the lessons indicated the number of steps which were observed, and the percentage of steps completed out of the number of steps for each lesson was calculated. Teachers in the intervention classes also used the procedural checklist as a self-check list for themselves.

The writing self-efficacy survey comprised statements to which students responded individually. The students rated each statement with a rating of 0 to 100, based on how confident they were.

Procedure

We conducted a validation interview seeking the opinions of the teachers in the intervention class regarding the content and language used in the intervention rubric. The teachers commented on the relevance of the rubric to the expectations of writing specifically for the third grade. They were also asked to provide suggestions regarding the ease of use and the appropriateness of the language used in the rubric. We then sought the professional validation of the intervention rubric from an English master teacher who was an experienced subject expert. Further amendments were then made to accommodate all the changes suggested.

We conducted a workshop for both comparison and intervention group teachers to explain the revised intervention rubric as well as the lesson plans for the intervention. During the intervention, intervention group teachers used the exemplars and the intervention rubric to teach writing. Students in the intervention group were given copies of the exemplars and the intervention rubric. We observed the lessons of the intervention classes and completed the procedural checklist to determine whether the teachers followed the steps required. We also observed the comparison group classes. For the comparison group classes, the school rubric was used as an assessment tool, but not as an instructional tool. Comparison group teachers did not explain the criteria set for writing compositions although students were given a graphic organizer to plan their story before proceeding to write it. All teachers collected student work at the end of the writing lessons and graded them. Twenty per cent of student work was graded by an independent grader.

At the end of the intervention, we interviewed 12 intervention group students; four high-, four middle- and four low-ability students, and the two teachers from the intervention classes. We used the intervention rubric and student work as triggers to jog the students' memory of their experience. Both intervention and comparison group students also completed the writing self-efficacy survey.

Data analysis

We used ANOVA to analyse the differences in changes in content and language scores of student compositions collected at the beginning and end of the intervention. We also calculated the inter-rater reliability of these language and content scores. The inter-rater agreement was 80.4%. ANOVA was also used to compare writing self-efficacy scores of intervention and comparison group students. Content analysis was used to examine student interview data. We also calculated the procedural compliance to the observation checklists by the two intervention group teachers. The compliance rate for Teachers 1 and 2 were 82.4% and 68.8%, respectively.

Results and discussion

Findings included greater positive changes in content scores for the intervention group compared to the comparison group although the differences were not significant. No changes were found in language scores. On the other hand, overall, intervention group students had a significantly higher self-efficacy score of 74% compared to 69% for comparison group students. The intervention group students were significantly more confident in writing an interesting story ($F = 4.26, p = .041, \eta^2 = .032$), using details to support ideas ($F = 12.35, p = .001, \eta^2 = .088$), and correctly using writing conventions ($F = 5.15, p = .025, \eta^2 = .039$). The intervention group teachers reported that the students were more aware of what good writing was and were more engaged as a result of having rubrics to guide them in their writing. The intervention group students reported that the intervention rubric helped them in the areas of content, vocabulary, organisation of ideas, writing conventions, and sentence fluency when they were writing.

This study provides some support for the hypothesis that having teachers use an instructional rubric together with exemplars for a writing assignment has a positive effect on the writing performance of their students and on their confidence in writing. The teachers in the study reported that using rubrics as an instructional tool along with exemplars helped their students become more confident in writing and more engaged during the writing process. Not only were students more confident and engaged in writing, they also reported liking writing more.

Students from the intervention group in the present study were able to understand what teachers expected from them from the instructional rubric and exemplars. They understood the assessment criteria and were confident of their ability to meet those criteria. They reported that

they felt that the structure of writing was clearer to them. The intervention group teachers reported that their students were more aware of what good writing was and were more engaged as a result of having the intervention rubric to guide them in their writing. The students reported that they could relate better to concrete symbols found in the intervention rubric in the form of stars rather than the abstract concept of levels used in the school rubric to rate their progress in writing.

Conclusion

The results suggest that using rubrics as an instructional tool along with exemplars can help students become more confident in writing and more engaged during the writing process. Moreover, although the changes in the quality of the writing was not statistically significant, students and teachers felt that student writing had actually improved as a result of students having been given an instructional rubric for writing.

There are several limitations to this investigation. One is the short intervention time. Another is that it is limited to female students. Third, it is limited to one school. It would be beneficial to replicate this investigation in more schools with both male and female students. Fourth, the teachers were not matched for their years of teaching experience as the classes were randomly assigned to the intervention and comparison groups.

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