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RESEARCH ARTICLE

ATTRIBUTIONAL FEEDBACK AND ITS EFFECT ON SELF-BELIEFS AND ACADEMIC ACHIEVEMENT: A REVIEW OF THE LITERATURE

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ABSTRACT

In this review of the professional literature, we analyze attributional feedback and its effect on self-beliefs and academic achievement. As defined by various researchers, attributional feedback refers to feedback that focuses on the students' abilities and efforts. Studies on the effects of these two types of praise in combination and isolation show a positive correlation between attributional feedback, self-beliefs, and academic achievement. Despite these findings, effort feedback is preferred by many theorists and researchers as it is said that ability feedback can have negative effects on students following failure. Nevertheless, studies which compared the effects of self-efficacy demonstrate that compared to no attributional feedback at all, those receiving this type of feedback showed improved self-efficacy and academic achievement. These findings have important implications for educators who wish to increase student motivation and consequently, academic achievement.

INTRODUCTION

Self-Concept and Self-Efficacy: How can educators motivate their students? What are some factors that determine student motivation? The answers to these questions are of significant importance to educators and members of the educational field. In essence, the ability to motivate students is fundamental for an effective classroom environment and possibly a significant factor to increase academic achievement, as suggested by various studies (e.g., see Aronson, 2008; Schiefele *et al.*, 2016). When discussing the topic of motivation within the realm of education, two terms often come to mind: *self-concept* and *self-efficacy*. In order to fully comprehend these terms, its effect on motivation and consequently, academic achievement, it is imperative to make a distinction between these two very similar yet distinct concepts. It is rather common for many to interpret *self-efficacy* and *self-concept* as synonymous. Indeed, these two terms are said to have similar effects on the individuals' thoughts, emotions, and actions. However, Bong and Skaalvik (2003) provide a rather helpful and meaningful distinction when they state that "while self-concept represents one's general perceptions of the self in given domains of functioning, self-efficacy represents individuals' expectations and convictions of what they can accomplish in given situations" (p. 5).

This difference is evident in empirical studies that attempt to study both self-concept and self-efficacy. Keeping this in mind is helpful when analyzing empirical studies that attempt to examine the students' self-concept and self-efficacy. The measurements for self-concept, for example, tend to ask whether a student believes they are *good* at math or reading. On the other hand, measurements for self-efficacy will ask about specific tasks, such as the students' beliefs on whether they can successfully solve a multiplication or addition problem (Bong and Skaalvik, 2003). Despite the differences in definition and measurement, it is evident that both self-concept and self-efficacy have significant consequences on motivation and academic achievement. As suggested by Albert Bandura (1993), a pioneer of self-efficacy research, "the motivating potential of outcome expectancies is thus partly governed by self-beliefs of capabilities" (p. 130). Hence, determining why and how self-efficacy and self-concept can be affected is of noteworthy interest to educators. Attributional feedback is one such teaching practice that has demonstrated to influence students' self-beliefs and has been studied by various leaders of the educational psychology field.

Defining Attributional Feedback: For all intents and purposes, one of the earliest definitions of *attributional feedback*, as termed by Dale Schunk (1983) and Paul Burnett (2003), will be utilized. These two researchers defined *attributional feedback* as feedback that relates to the students' effort or abilities as the source of their success. This differs from other definitions of feedback such as the one proposed by John

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Hattie and Helen Timperley (2007), who define feedback as a means of informing the students' ability to understand a certain concept or one that focuses on the correctness of the students' performance (p. 81). The authors' definition of feedback is narrower as it focuses on providing information on the product only, rather than the person's ability or efforts. Essentially, *attributional feedback* refers to two types of praise: ability and effort praise also termed as *ability* and *effort feedback*. It is also worthy of mention that literature concerning *attributional feedback* varies in its terminology. *Attributional feedback*, for example, has been termed as *feedback of the self* by Hattie (2007) and *non-cognitive feedback* by Orit Zeichner (2018). Similarly, *ability feedback* can also be found under different names such as *whole person feedback*, *person praise*, and *academic praise* (Chalk and Bizo, 2004; Dweck, 2000; Hale, 2018). On the other hand, *effort feedback* has been described, perhaps in more positive terms, as *process praise* and *specific praise* (Chalk and Bizo, 2004; Dweck, 2000). Nonetheless, despite the varied terminology, all these studies pertain to the concepts under review, effort and ability feedback. See Table 1 for an overview of the definitions. Controversy surrounds the effects of praise in the classroom as a method of feedback.

Disagreement appears amongst researchers on the benefits of praise. While some theorists argue that feedback or praise should be directed at work and not the students themselves, various empirical studies have shown that this type of praise does increase self-beliefs and, consequently, academic achievement. Hence, the purpose of this study is to review literature aimed at studying the effects of attributional feedback on students' self-concept, self-efficacy, and academic achievement.

METHOD: LITERATURE REVIEW

The descriptors utilized to locate the articles were combinations of the following: *effort praise*, *ability praise*, *attributional feedback*, *self-efficacy*, *self-concept*, *academic achievement*, and *types of feedback*. The databases that were used to locate the articles were WorldCat, EBSCO, ERIC, and JSTOR (see Table 2). In total, nine empirical studies were located that tested the effects of these two types of feedback on self-beliefs, two of which required translation as they were written in Korean. Furthermore, only three of the nine omitted any analysis on academic achievement. To provide a narrower focus, studies that included college students were not included in the review.

Table 1. Definitions

Key Terms	Definitions
Ability Feedback	Schunk (1983) defines <i>ability feedback</i> when he states that "some attributional feedback subjects received ability feedback informing them that they are good in arithmetic" (p. 849). One can see from this that ability feedback is one that informs the student how good or bad they are in a specific subject area.
Attributional Feedback	According to Burnett (2003), <i>attributional feedback</i> "relates to teachers attributing a student's success in a task to a specific reason" (p. 11). The two types of attributional cited in the article include <i>ability feedback</i> and <i>effort feedback</i> .
Effort Feedback	According to Schunk (2003), " <i>effort attributional feedback</i> is oral or written feedback by others that links performance outcomes with effort (Schunk, 1983)" (p. 1).
Self-Concept	According to Burnett (1994), <i>self-concept</i> is defined as "the beliefs that people have about specific characteristics associated with themselves" (p. 1965).
Self-Efficacy	According to Schunk, (1983), " <i>self-efficacy</i> refers to judgments of how well one can organize and implement actions in specific situations that may contain ambiguous, unpredictable, and possibly stressful elements" (p. 848).

Table 2. Audit Trail of Database Searches

Database	Dates Reviewed	Search Terms	Sources found	Relevant sources
World Cat	1980 - 2018	"ability" or "effort praise" AND "performance" or "academic achievement"	17	0
World Cat	1980 - 2018	"ability feedback"	88	4
World Cat	1980 - 2018	"attributional feedback" AND "self-efficacy"	167	5
World Cat	1980 - 2018	"process praise"	35	1
EBSCO	1980 - 2018	"attributional feedback" AND "self-concept"	5	0
JSTOR	1980 - 2018	"teacher praise" AND "self-concept"	96	1

Table 3. Methods

Author and Publication Year	Methodology	Sample
Burnett (2003)	Quantitative Non experimental, Two Self-Talk Inventories and Teacher Feedback Scale	747 Students in Australia, Ages 7 to 12, Grades 3 to 6, Convenience Sample
Chalk and Bizo (2004)	Quantitative Experimental, MALS or Myself-As-A-Learner Scale	109 Students in the United Kingdom, Ages 8 and 9, 4 th Year Students, Convenience Sample
Hau and Salili (1996)	Quantitative Experimental, Pre/Post Treatment Skills Test, Pre/Post Treatment Attribution Questionnaire	386 Chinese Students in Hong Kong, Ages 7-15, Grades 2,4,6,8, and 10, Purposive SampleRandom Assignment
Jain, Bruce <i>et al.</i> (2010)	Quantitative Experimental, Pre/Post Self-Efficacy Scale	192 Students in India, Ages 12 to 14, Grade 8, Purposive SampleRandom Assignment
Jong-Su (2010)	Quantitative Experimental, Pre/Post Self-Efficacy Scale, Pre/Post Achievement Test	45 students in South Korea, Age not given, Grade 2, Purposive SampleRandom Assignment
Lee Young and Jung (2002)	Quantitative Experimental, Pre/Post Self-Efficacy Scale, Pre/Post Achievement test	60 Students in South KoreaHigh School, Age not given, Year 1, Purposive SampleRandom Assignment
Schunk (1982)	Quantitative Experimental, Pre/Post Treatment Self-Efficacy Scale	40 Children Location, Grade Unstated, Ages 7 to 10, Purposive SampleRandom Assignment
Schunk (1983)	Quantitative Experimental, Pre/Post Treatment Self-Efficacy Scale	44 Students Location Unstated, Ages 8 to 10, Grade 3, Purposive SampleRandom Assignment
Zeichner (2018)	Mixed Methods Approach, Four Questionnaires	171 Students in a Distance Learning Environment, Location, Grade Unstated, Ages 14 to 15, Purposive SampleRandom Assignment

Empirical studies were also limited to students currently enrolled in schools. Studies conducted to test parenting techniques and for business organizations were omitted. Additionally, studies that sought to combine attributional feedback with a different type of feedback, such as the one conducted by Craven, Marsh, and Debus (1991), who combined both attributional feedback and performance feedback, were excluded because they did not allow for a separation of their effects. Tables 2 and 3 provide a list of the literature reviewed including the authors' methodology and findings.

RESULTS

Attributional Feedback and Self-Efficacy: Overall, evidence from several research studies showed that, compared to students that did not receive attributional feedback, students who received either effort or ability feedback had higher self-efficacy (Jain *et al.*, 2010; Jong-u, 2010; Lee Young and Jung, 2002; Schunk, 1982; Schunk, 1983; Zeichner, 2018). For example, a study conducted on 171 high school students in a distance learning environment demonstrated that compared to students that only received cognitive feedback, students who received effort, or ability feedback reported higher self-efficacy (Zeichner, 2018). Based on these findings, it is speculated that merely providing feedback on the students' performance is not enough to create any significant change in the individual's self-efficacy. This outcome was also observed in two similar studies conducted by Jain *et al.* (2010) and Schunk (1983). In these studies, the researchers implemented effort feedback such as "you've been working hard" or ability feedback such as "you're good at this" (Schunk, 1983, p. 851). However, in contrast to Zeichner's study, students in the control group for both of these studies were provided neutral feedback or an "okay" statement rather than content feedback (Schunk, 1983, p. 851). The researchers found that compared to neutral feedback, students receiving attributional feedback had higher self-efficacy (Jain *et al.*, 2010; Schunk, 1983). These same results were evident in two related studies conducted in South Korea on both elementary and high school students. Those who received attributional feedback in a span of five weeks demonstrated a higher self-efficacy than the control group who was only given the results of the assessment (Jong-Su, 2010; Lee Young and Jung, 2002). Feedback in these two studies included statements such as "you are capable in mathematics" for ability feedback and "you studied hard during your study time" for effort feedback (Lee Young and Jung, 2002, p. 33). However, in addition to praise such as the statements mentioned above, students who underperformed were given feedback such as "think about your ability, if you work harder..." (Lee Young and Jung, 2002). Hence, the attributional feedback provided in these two studies not only included praise when students performed well, they also reassured their abilities and emphasized on effort when the students underperformed. See Table 4 for feedback types and examples. Furthermore, it should be noted that the two studies on self-concept identified did not include a control group, so these effects of attributional feedback cannot be generalized to self-concept.

Attributional Feedback and Academic Achievement: The overarching effect of attributional feedback on self-efficacy compared to those with no attributional feedback was also well established within the realm of academic achievement. From the five studies on academic achievement that possessed a control group, four of them demonstrated that compared to no

attributional feedback, those receiving either effort or ability feedback achieved higher performance. The studies by Zeichner (2018), Jong-Su (2010), Lee Young and Jung (2002), and Schunk (1983) showed that those receiving attributional feedback outperformed the control group. However, a study conducted with 386 Chinese elementary and high school students did not portray the same finding. As stated by the researchers, ability feedback increased student performance and that "contrary to (their) initial speculation, effort feedback did not lead to better performance" (Hau and Salili, 1996, p. 81). Hence, one may assume, based on these studies, that in comparison to neutral or no feedback, providing attributional feedback may improve both the students' self-efficacy and academic achievement.

Effort Feedback Versus Ability Feedback: Studies comparing effort feedback and ability feedback and their effects on self-beliefs yielded mixed results. First, from the nine studies found, six of them evaluated the differential effects of effort feedback and ability feedback. Interestingly enough, three of the studies found ability feedback to have more significant effects on self-concept or self-efficacy than effort feedback, with the remaining three demonstrating quite the opposite. It appears that the data from these empirical studies is split in half, resulting in inconclusive results. It is possible that the date in which the studies were conducted pose a possible explanation for such a peculiarity. The studies that showed ability feedback to have greater effects on self-beliefs are earlier studies with the oldest dating back as far as 1983 and the newest being from 2003 (Burnett, 2003; Hau and Salili, 1996; Schunk, 1983). On the other hand, the studies that demonstrate the opposite are newer, with the oldest dating back to 2004 and the newest to 2018 (Chalk and Bizo, 2004; Jain *et al.*, 2010; Zeichner 2018). One may argue that the data found on effort feedback is more reliable because it is more recent. The results from the studies were also somewhat mixed on the differential effects of ability feedback and effort feedback on academic achievement. From the six studies that compared both types of feedback, only three attempted to analyze the correlations between attributional feedback and academic performance. Surprisingly, two of the three studies determined that ability feedback had a greater effect on academic achievement than effort feedback, as demonstrated by pre- and post- skills tests (Hau and Salili, 1996; Schunk, 1983). The most recent study, however, pointed at effort feedback proving to be more effective at enhancing academic performance (Zeichner, 2018). Unfortunately, a lack of recent studies comparing the effects of these two types of feedback and its effect on academic achievement exists. Indeed, more contemporary studies are needed to validate this finding. The treatment conditions are also worth considering. The study conducted by Zeichner (2018) on high school students was conducted over one academic year (p. 18). On the other hand, the other two studies were conducted over a much shorter period of time. The study conducted by Schunk (1983) on 3rd graders lasted three school days (p. 851). The study by Kit-Tai Hau and Farideh Salili (1996) was even shorter with the self-learning mathematics package requiring about two hours to complete (p. 74). It may be that, while ability feedback has a more immediate effect on academic achievement than effort feedback, in the long run, those receiving effort feedback outperform those receiving ability feedback. More longitudinal studies will be necessary before any real conclusions are made on the long-term effects of effort feedback and ability feedback on academic achievement. See Table 5 for a summary of the findings.

Table 4. Feedback Types and Examples

Feedback Type	Example
Effort Feedback	"You've been working hard" (Schunk, 1983; Jain et. al., 2010)
Ability Feedback	"You are very talented in..." (Burnett, 2003)
Attributional feedback after underperformance (Jong-Su, 2010; Lee Young & Yung, 2002)	"Think about your ability, if you work harder..." (Jong-Su, A., 2010)
Neutral Feedback	"Okay" (Schunk, 1983; Jain et. al., 2010)

Table 5. Summarized Results

Author and Publication Year	Aim of Study	Findings
Burnett (2003)	To investigate "the relationships between teacher feedback and students' self-talk and self-concepts in specific areas such as mathematics and reading" (p. 12).	"Students who had high positive self-talk and low negative self-talk perceived that their teachers frequently provided ability feedback" (p. 15).
Chalk and Bizo (2004)	To investigate the effects of positive praise, including ability praise, and specific praise, praise on effort or strategy, on self-concept and on-task behavior.	Academic self-concept scores "increased significantly for pupils in the specific praise but not the positive praise condition" (p. 346).
Hau and Salili (1996)	To examine the differential effects of effort and attributional feedback on motivation in Chinese students.	"Students who received ability feedback judged themselves to have higher ability, better study skills, and stronger interest in the task" (p. 82).
Jain, Bruce et al., (2010)	To investigate "the effect of attributional feedback on self-efficacy judgments among a sample of 192 eighth-grade students" (p. 2).	"Effort feedback was found to be most effective for enhancing self-efficacy ratings" (p. 10).
Jong-Su, (2010).	To "investigate the effect of attribution feedback on the self-efficacy and achievement of mathematics subjects in the elementary school learning situation" (p. 28).	In comparison to the control group, students receiving attribution feedback reported higher self-efficacy and scored higher in the mathematics post-test.
Lee Young and Jung(2002)	To determine the effect of attribution feedback on underachieving math students in their first year of high school (p. 299).	"The experimental group receiving the feedback training showed higher self-efficacy in math learning than the non-trained control group" (p. 34). Additionally, students who received attribution feedback scored higher in the post-test than those in the control group.
Schunk (1982)	To "test the hypothesis that effort attributional feedback concerning past accomplishments promotes percepts of self-efficacy and mathematical achievement" (p. 548).	Supported the hypothesis that attributional feedback linking past achievement with effort would promote self-efficacy.
Schunk (1983)	To explore the effects of ability or effort attributional feedback given during subtraction competency development on children's perceived self-efficacy and achievement" (p. 848).	Attributional feedback had positive effects on self-efficacy but those who received ability attributional feedback "judged themselves the most efficacious and solved correctly the highest number of posttest problems" (853).
Zeichner (2018)	To investigate the influence of three types of feedback on self-efficacy, sense of threat, sense of challenge, and achievement in a distance learning environment" (p. 21).	Students who received effort or ability feedback had higher self-efficacy and improved test scores than those who received content feedback only.

DISCUSSION

Criticism of Attributional Feedback: While both types of attributional feedback appear to have positive effects on self-efficacy, self-concept, and academic achievement, the use of praise is not widely accepted by the research community, specifically those considering other aspects of motivation such as persistence. Criticisms of praise include the effects that ability feedback has on individuals following a failure experience. For example, several studies on the detrimental effects of ability feedback conducted by Carol Dweck (2000) found that groups receiving praise for their intelligence declined in academic performance after experiencing failure (p. 118). It was determined that receiving this type of praise had debilitating effects once students encountered failure because such praise increased their vulnerability. Others have been much harsher about attributional feedback altogether, stating that feedback that praises the person instead of their performance should be discarded because it "has too little value to result in learning gains" (Hattie, 2000, p. 96). Unfortunately, more studies are needed to confirm these negative effects since most criticism on praise, especially ability praise, stem primarily from Dweck's studies and these also lacked a no-praise control group (Corpus and Lepper, 2007).

Student Preferences Between Effort and Ability Feedback: One other point worthy of mention is students' preferences for attributional feedback. In a rather paradoxical way, even with several studies demonstrating positive effects of ability feedback on self-efficacy, studies on feedback preferences

show that students tend to prefer effort feedback over ability feedback (Burnett, 2001, 2010). Age may very well play a factor as well in this finding with studies demonstrating that younger students tend to lean towards ability feedback while older students lean towards effort feedback (Burnett, 2010; Hau and Salili, 1996). More research studies are needed to confirm whether developmental differences explain these results in a preference for either type of feedback. Additionally, this may also explain why effort feedback can have positive effects on achievement in the long run.

Limitations and Future Research Considerations: One limitation of the present study is the limited sample of articles, with only nine studies being included in the review. Also, due to the rather controversial effects of attributional feedback, it is evident that there is a need for more qualitative studies and longitudinal studies on its effect on self-beliefs and academic achievement. All the studies examining the effects of attributional feedback on self-concept, self-efficacy, and academic achievement were quantitative, and the vast majority were also experimental. Another research consideration is to examine whether the adverse effects of praise as suggested by Dweck are moderated by age (Corpus and Lepper, 2007).

Implications for Educators: The findings from reviewing the related studies have significant implications for educators. First, despite criticisms, empirical studies show a moderate, yet positive correlation between attributional feedback and self-efficacy. Praising students for their abilities or efforts may increase their self-efficacy more so than providing them

feedback that only focuses on how correctly they completed a certain task. Both types of attributional feedback can also help increase academic achievement as demonstrated in the studies that compared the results on skills tests with the no attributional feedback or only cognitive feedback control groups. Another point worth mentioning is the great variation in student population found in the studies. The modern classroom is very diverse, hence, using feedback that is effective despite cultural differences is beneficial, and it appears that attributional feedback has positive effects on students from different national, ethnic, and cultural backgrounds. Participants from the studies reviewed included students in Australia, the United Kingdom, Hong Kong, India, South Korea, and students in a distance learning environment (see Table 3). Finally, the educator must also take into consideration the students' preferences. While using both types of feedback can be beneficial, educators may choose to employ more effort feedback as it appears to be preferred by students and doing so may avoid the possible negative effects ability feedback can have after the student experiences failure (Burnett, 2001, 2010; Dweck, 2000).

Conclusion

The purpose of the study was to review professional literature on the effects of attributional feedback on self-beliefs and academic achievement on students of K-12 classrooms. Empirical studies on attributional feedback point to positive effects on self-concept, self-efficacy, and academic achievement. Evidence shows that students' motivation can be enhanced by praise that affirms their abilities and efforts. On the other hand, while the use of praise is a practice well-known to most educators, its effect on the student has undergone scrutiny with various researchers claiming praise to have detrimental effects on student motivation due to its limited educational value. Unfortunately, neither the criticisms nor positive effects of attributional feedback can be fully asserted as there is an evident need for more qualitative and longitudinal studies.

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