The effects of ability- and effort-based praise on task persistence and task performance.

By: Adam D. Weaver, T. Steuart Watson, Craig Cashwell, Julie Hinds, and Susan Fascio


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Abstract:
A pervasive idea among many school professionals is that verbal praise for ability may have several undesirable consequences relative to verbal praise for effort. Despite these arguments, past research has produced conflicting results. The present study utilized single-subject research methods with seven students ages 9 to 12 to examine the potential effects of ability- and effort-based verbal praise statements on task performance and task persistence. For four of the seven participants, only very small differences, if any, in task persistence were noted between conditions. For the remaining participants, results were mixed with two participants demonstrating more task persistence during the effort-based condition and one demonstrating more task persistence during the ability-based condition. For task performance, results were also mixed with some participants performing better during the ability-based condition and others performing better during the effort-based condition. Results of this study do not support the criticism uniformly leveled against ability-based verbal praise. Limitations, possible explanations of the results, and directions for future research are discussed. Keywords: verbal praise; effort-based and ability-based task performance; task persistence; single-subject research methods.

Article:
Perhaps the most commonly used form of reinforcement for children at home and at school is verbal praise. Aside from its role as a reinforcer, parents and teachers often use praise to enhance feelings of competence and self-determination in children (Koestner, Zuckerman, & Koestner, 1987; Mueller & Dweck, 1998). Despite the widespread use of verbal praise in homes and classrooms, there is a widely-held belief among many school professionals, based on a small body of literature, that certain types of praise may have several undesirable effects.

It has been suggested, for example, that praise for ability may cause children to develop a "performance goal orientation," which, in turn, may have several negative consequences for children (Butler, 1987; Dweck & Leggett, 1988). Dweck and Leggett (1988) equated performance goals with "helpless" children, in contrast to the learning goals of "mastery-oriented" children. Children with performance goals seemed to view tasks as tests of competence whereas children with learning goals seemed to view tasks as opportunities to increase their competence and acquire new skills. Within the realm of observable behavior, when faced with a difficult task, children with performance goals may be more likely to report negative self-cognitions, demonstrate negative affect, engage in talking out behaviors, and demonstrate impaired performance. Butler (1987) asserted that feedback or praise that focuses on self-worth and ability rather than on the task itself will undermine task interest and performance.

In addition to these charges, it has been suggested that praise for intelligence may teach children that ability and intelligence are stable traits that are not amenable to change. Children with this orientation may interpret good performance on a task as a sign of high intelligence and ability, and poor performance as a sign of low
intelligence and ability. Thus, praise for ability may lead children to make ability attributions for both their successes and failures (Mueller & Dweck, 1998). The negative motivational consequences associated with these ability attributions have been asserted by a number of researchers to be linked to learned helplessness in the face of failure (Covington & Omelich, 1984; Dweck, 1975; Dweck & Leggett, 1988).

In contrast to ability-based praise, effort-based praise is said to help children focus on the process of their work and see the possibilities for learning and improvements that hard work may bring. In other words, effort-based praise may lead to learning goals rather than performance goals, which may result in persistence and enjoyment rather than frustration in the face of difficulties (Dweck & Leggett, 1988). It has been asserted as well that effort-based praise may also have an attributional effect. Rather than creating stable ability attributions as ability-based praise is said to do, effort-based praise may result in children attributing their performance to effort, which can vary in amount. Children may thus interpret poor performance as a temporary and correctable lack of effort on their part rather than as a deficit in intelligence or innate ability.

Although the arguments regarding ability- and effort-based praise appear reasonable, the rather limited body of research has provided equivocal findings. Mueller and Dweck (1998) found strong evidence for the differential effects of ability- and effort-based praise on children's achievement behaviors and reported attributions, with children praised for ability showing less task persistence, less task enjoyment, and poorer task performance. However, other studies have produced conflicting results. For instance, Miller, Brickman, and Bolen (1975) found that children praised for their ability improved their math performance more than children praised for effort. Interestingly, in a study examining the effects of praise on task performance, perceived competence, and intrinsic motivation, Koestner, Zuckerman, and Koestner (1989) found that boys performed better after receiving ability-based praise while girls performed better after receiving effort-based praise. Thus, little consistency is to be found in the existing literature.

Two recent meta-analyses have examined the effects of external rewards, including verbal praise (Cameron, Banko, & Pierce, 2001; Deci, Koestner, & Ryan, 1999). Although the primary emphasis of both meta-analyses was the effect of external rewards on intrinsic motivation, most of the included studies also examined the effects on task performance and task persistence. Although the authors of the meta-analyses reached two very different conclusions regarding the overall effects of external rewards on intrinsic motivation, both found that verbal praise served to increase (or at the very least, did not decrease) intrinsic motivation, task performance, and task persistence. However, in most of the studies included in the meta-analyses, there was little specific information on the type of verbal praise used. Specifically, most studies did not differentiate between ability-based and effort-based verbal praise.

Professionals who treat common child behavior problems are often asked by teachers for advice and assistance in classroom management, including appropriate types of reinforcers. In addition, many home-based treatments emphasize increasing positive parent-child interaction. Because verbal praise has a prominent role in both cases, it is important to determine if any form of praise may have unanticipated undesirable effects. The present study was conducted as a first step in the attempt to clarify findings from the existing literature and to further research in this area by examining the potential effects of ability- and effort-based verbal praise statements on task performance and task persistence.

**Method**

**Participants and Setting**

Participants were seven elementary school students (four boys and three girls) between the ages of 9 and 12. The setting was a classroom in which only the participant and the examiner were present. Both the participant and the examiner were seated around a table on which the task, a 100-piece puzzle, was presented. Each session was videotaped. Parental consent and child assent were obtained for all participants.
**Dependent Variables**

Two dependent variables were measured: (a) task persistence, and (b) task performance. Task persistence was defined as the percent of intervals spent on-task during each condition using a partial interval recording system. Participants were coded as "on-task" when their eyes were directed at the task and/or one or both hands were engaged in manipulating puzzle pieces. Task performance was defined as the number of puzzle pieces correctly assembled during each session.

Following a 10-minute baseline, three 10-minute conditions were implemented. During the ability-based condition, verbal praise for ability was given (e.g., "I can see you are very smart", "I can tell you're very good at puzzles", etc.). During the effort-based condition, verbal praise for effort was given (e.g., "I can see you're a hard worker", "I can tell you're trying your best", etc.). During the control condition, neutral verbal statements were made (e.g., "It's a nice day today", "Today is Thursday", etc.). All statements were made at 30-second intervals and were noncontingent upon task persistence or performance in order to ensure that an equal number of statements were provided in each condition. The order in which conditions were presented was counterbalanced across participants.

**Data Collection**

During each condition, a six-second partial interval recording procedure was used to measure task persistence on the puzzle. Each session was videotaped and later coded by two graduate students. Inter-observer reliability was calculated as the number of agreements regarding whether or not the participant was on-task during a particular interval divided by the sum of total agreements minus disagreements multiplied by 100 percent, and ranged from 97 percent to 100 percent.

**Results**

**Task Persistence**

Task persistence for the seven participants is shown in Figure 1 (Pg. 367). For four of the seven participants (Karl, Brittney, Sarah, and Eli), only very small differences, if any, in task persistence were noted between ability- and effort-based praise. In these cases, the number of intervals on-task exceeded 88 percent, regardless of praise condition. Three participants (Deljuan, Justin, and Jenny) showed more noticeable differences between conditions. The differential effects found for Justin and Jenny replicate the results reported by Koestner et al (1989) in that Justin, a male, was more task persistent during the ability-based condition while Jenny, a female, was more task persistent during the effort-based condition. The most noticeable difference was seen in the case of Deljuan, whose task persistence during the effort-based condition far exceeded task persistence during the ability-based condition. Deljuan's case was inconsistent with the findings of Koestner et al (1989) in that he was more task-persistent during the effort-based condition than during the ability-based condition.

**Task Performance**

The number of puzzle pieces correctly assembled during each condition varied by participant and is shown in Figure 2 (Pg.368). As may be seen, some participants performed better during the ability-based condition (Brittney, Sarah, Eli, and Justin) while others performed better during the effort-based condition (Karl, Deljuan, and Jenny). The most dramatic effects were seen for Brittney who performed significantly better during the ability-based condition. It should be noted that puzzle completion is an imprecise skill and that sometimes performance has as much to do with luck as with skill. In addition, above-average performance is often seen at the beginning when corner and edge pieces are assembled. It is important to note, however, that variations in task performance over time and exposure to different praise conditions did not result in decreased task persistence despite the puzzle becoming more difficult and fewer pieces assembled correctly.
Discussion

A common perception among education professionals, based on limited research, is that verbal praise for ability may have several negative side effects, including deficits in task performance and task persistence relative to praise for effort. However, in this study, we found no evidence to associate negative effects with verbal praise for ability. It appears that the differential effects of ability- and effort-based praise found in this study, which were inconsistent and varied by subject, were most likely due to individual differences and do not support the criticisms uniformly leveled against ability-based praise.

It is difficult to evaluate the consistency of our findings with those of other studies because most other studies used nomothetic research methods (e.g., Butler, 1987; Koestner et al, 1989; Miller et al, 1975; Mueller et al, 1998; Schunk, 1996). Previous studies such as those listed above have used inferential statistics to induce general statements about a population from a specific sample of subjects. In contrast, the present study utilized idiographic research methods in order to determine whether there were differential effects for each specific participant. Studies such as those by Mueller and Dweck (1998) and Butler (1987) have reported negative consequences of ability-based praise. Other studies, such as that by Miller, Brickman, and Bolen (1975) have reported differentially positive effects of ability-based praise. Finally, Koestner et al (1989) found negative effects of ability-based praise for girls and positive effects for boys.

It is also difficult to evaluate the internal consistency of the present study. Some participants performed much better while receiving ability-based praise (e.g., Brittney and Sarah), while others performed better while receiving effort-based praise (e.g., Karl and Deljuan). Similarly, some participants displayed more task persistence while receiving ability-based praise (e.g., Sarah and Justin), while others were on-task more while receiving effort-based praise (e.g., Deljuan and Jenny).

Perhaps one reason that a consistent pattern did not emerge in this study is that there is no consistent pattern in the population at large. Behavior analysts are frequently made aware of the individual differences among children. Thus, it is important in research, as well as in practice, to take account of these individual differences. General assumptions that are made regarding all children or groups of children may often be harmful, or at the very least, provide inadequate information for the purposes of assessment and treatment. Most often, adequate information about a child can only be gained by evaluating that child as an individual. Regardless of the interpretation, it is clear that using inferential statistics with the data obtained in this study would not provide a clear picture of the differences seen between participants. While Eli, for instance, may perform at similar levels under each condition, clearly, Deljuan showed more on-task behavior while receiving effort-based praise. This provides evidence that idiographic methods may often be more appropriate for the applied setting than nomothetic methods.

In addition, a distinction must be made between verbal praise as reward and verbal praise as reinforcer. While a reward may be delivered contingent upon desired behavior, only when the desired behavior increases as a result does that reward take on reinforcing properties. Underscoring the importance of individual differences noted above, it is important to remember that while a particular stimuli may serve as a reinforcer for some individuals (possibly most individuals), that same stimuli may not serve as a reinforcer for others. Thus, it is possible to interpret results from past studies not as indicative of potential negative effects of ability-based praise, but as demonstrations of differential reinforcing properties of two distinct stimuli.

The present study is intended as a pilot study and is certainly not definitive nor without limitations. First, if children's attributions do play such a large role in their performance as some literature suggests, it could be argued that these attributions have already been formed at home and at school and the conditions in the present study did little to change them. In other words, under all conditions of the study, children may have performed based on their already formed attributions rather than on the specific type of praise received in a condition. However, this same criticism could be leveled against much of the past research as well. It is also possible that
if data were collected over multiple sessions rather than as a single probe under each condition, a clearer pattern may have emerged. The limitations of the task itself, the 100-piece puzzle, have been previously mentioned.

Future research could build upon the present study in a number of ways. As discussed above, it may be beneficial to collect data on each condition over multiple sessions rather than as a single probe. It would also be interesting to see what results would emerge if different tasks, including academic tasks, were used. Future single-subject research examining effects of ability- and effort-based praise on a variety of tasks would be useful in applying these results to other settings. Finally, it would be interesting to begin with a preference assessment including ability-based praise, effort-based praise, and other common rewards, and determine how predictive the result is on the actual reinforcing strength of these stimuli on a variety of desired behaviors. Results of these and other future studies may possibly conclude that one type of praise is superior relative to the other. On the other hand, results may confirm that while certain characteristics or behaviors may exist in most children, they seldom exist in all children.

References


Figure 1. Task persistence across conditions for the seven participants using a 6-second partial-interval recording system.

Figure 2. Task performance (the number of puzzle pieces correctly assembled) across conditions for the seven participants.