

Department of Psychology  
St. Thomas University  
Fredericton, NB Canada

# An Experimental Study of Learned Helplessness in Middle-Schoolers

Nancy C. Higgins<sup>1</sup>, Olivier Rasclé<sup>2</sup>, Faustine Marbac<sup>3</sup>, David Le Foll<sup>2</sup>, Maxime Charrier<sup>2</sup>, & Geneviève Cabagno<sup>2</sup>

<sup>1</sup> Department of Psychology, St. Thomas University, Fredericton, Canada

<sup>2</sup> Department of Sport Sciences, University Rennes 2, Rennes, France

<sup>3</sup> Lycée L'Agora, Puteaux, France



Department of Sport Sciences  
University of Rennes 2  
Rennes, France

## ABSTRACT

**Purpose.** This field experiment investigated the effects of accurate and non-accurate performance feedback on causal attributions, success expectancy, performance, and persistence on a motor task.

**Method.** Forty-six male middle-schoolers were randomly assigned to a Contingent (accurate) feedback, Non-contingent (non-accurate) feedback, or Control (no feedback) group and completed a challenging motor task. An initial treatment phase provided either accurate contingent feedback or yoked non-contingent feedback during the task, and measured task performance, attributions about performance, and success expectancy about future performance. A subsequent testing phase (same task) used the same measures and added a measure of motivation (persistence).

**Results.** Compared to the Contingent and Control groups, Noncontingent outcome feedback during the initial treatment phase led to more personally uncontrollable attributions, lower success expectancy, poorer performance, and lower persistence in the subsequent test phase. Despite a high rate of failure in the motor task for both feedback groups in the treatment phase, the Contingent group—getting accurate feedback about performance—had a higher sense of personal control and expectancy of success than the Non-contingent feedback group initially, and maintained these perceptions in the subsequent test phase where they also had better performance and higher levels of persistence than the Non-contingent group.

**Conclusion.** Non-contingent feedback in an initial motor task appears to induce helplessness deficits in subsequent task performance and persistence. In contrast, providing accurate (contingent) feedback about achieved performance appears to protect against performance and motivational losses.

## INTRODUCTION

Parents, teachers, coaches, and researchers in fields of education and psychology for many years have been trying to answer the question, “What affects motivation to learn?” Numerous studies have highlighted the essential role of failure and fear of failure in achievement motivation, which often lead to a loss of motivation. Motivated individuals typically believe that an outcome they are interested in can be successfully achieved. However, following failure, there are those no longer strive to obtain better results. Some of these individuals display learned helplessness in which they have developed, among other deficits, a belief that their actions have no effect on desired outcomes. People’s beliefs about the reasons for their successes and failures (i.e., their causal attributions) are particularly relevant in understanding learned helplessness, since low expectations of success are primarily a result of demotivating causal attributions about performance outcomes. In attribution theory, explaining a bad outcome with a personally controllable cause, such as a lack of effort, allows the individual to believe in the possibility of changing the outcome of a similar event in future. In contrast, explaining a bad outcome with a personally uncontrollable cause, such as a lack of ability, reduces the individual’s expectation of future success with a similar event. While much of the research on learned helplessness deficits is in academic contexts, less has been done in motor performance contexts where helplessness deficits may be especially applicable, given that public demonstration of motor skills fosters social comparisons that influence the use of maladaptive learning strategies. Furthermore, the majority of helplessness research has been conducted with elementary, high school, or college-age youth, with limited research during adolescent middle-school years, despite the finding that the debilitating effects of helplessness deficits affect middle-school students more than elementary school students. Research on middle-schoolers’ approaches to challenging tasks will be necessary for designing and testing interventions for these groups.

The purpose of the present study was to use a triadic learned helplessness design to investigate the effects of accurate and contingent outcome feedback versus non-contingent outcome feedback on middle-school students’ causal attributions (i.e., perceived personal control), success expectancy, performance, and persistence behavior. The study focused on initial effects (Hypothesis 1) and residual effects (Hypothesis 2) of exposure to contingent and non-contingent feedback in a motor task. The initial effects hypothesis (Hypothesis 1) addressed the question of whether contingent and non-contingent outcome feedback during a motor task would differentially affect causal attributions and success expectancy. It was predicted that, compared to those receiving accurate contingent feedback about outcomes, the group receiving non-contingent feedback during an initial motor task would produce more personally uncontrollable attributions about that initial task and have lower success expectancy.

The residual effects hypothesis (Hypothesis 2) addressed the question of whether contingent and non-contingent outcome feedback during an initial motor task would differentially affect causal attributions, success expectancy, and performance on a subsequent motor task, as well as persistence during a subsequent opportunity to practice the motor task. It was expected that non-contingent feedback about outcomes during an initial task would lead to more personally uncontrollable attributions, lower success expectancy strength, and lower levels of performance on the subsequent task, as well as lower persistence on a free attempt at the task when compared to a contingent feedback group and a control group (who have no exposure to the contingency manipulation).

## METHOD

Forty-six male middle-schoolers were randomly assigned to a Contingent (accurate) feedback, Non-contingent (non-accurate) feedback, or Control (no feedback) group and completed a challenging motor task. An initial treatment phase provided either accurate contingent feedback or yoked non-contingent feedback during the task, and measured task performance, attributions about performance, and success expectancy about future performance. A subsequent testing phase (same task) used the same measures and added a measure of motivation (persistence).

The experimental procedure consisted of four phases: familiarization, treatment, test, and debriefing (Gernigon et al., 2000).

**Familiarization:** During the familiarization phase, participants in the experimental groups were given an explanation of the required task. They were shown how to shoot an underarm serve in badminton in order to reach the opposite service square in the opposing half-court.

**Treatment phase:** The experimenter told each participant in the two experimental conditions that the first trial would be made up of 30 underarm serves to a target in the opposite court service square. Failure performance was induced through the use of a small target (30 × 30 cm) added on the ground in the opposing service square at which the participant was told to aim. Before the participants stroked their first serve, a computer emitting an auditory signal every five seconds was started and participants were told that if they did not make a serve during the quiet five seconds, it would constitute a missed try. Finally, each participant was informed that a missed service (the birdie does not pass the net) would not be counted. The reason for not counting missed tries for individuals in the Contingent condition was because feedback in the Non-contingent group was yoked to that of the Contingent group, and Contingent group feedback was only given if the birdie passed the net.

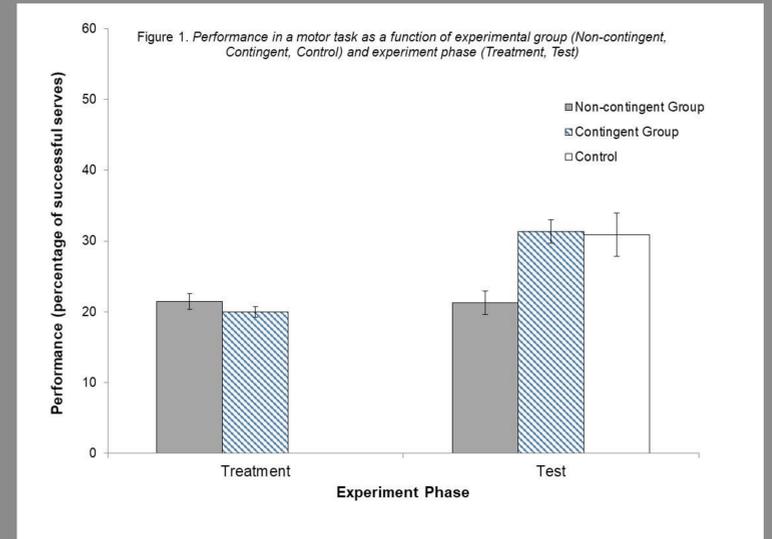
For the Contingent group, the experimenter first presented the study, individually, and as follows: “*this task identifies pupils capable of serving and reaching a predefined target*”. Although participants were able to observe *in situ* their performance, the experimenter also provided oral feedback such as “you got that one” (success) or “you did not get that one” (failure) after each trial. For the Non-contingent group, the experimenter first presented the study, individually, and as follows: “*this task identifies pupils capable of spatially representing an area to be reached and of relating this spatial representation and it’s motor skills during a service*”. A diagram accompanied this explanation, and was visible and pointed to on a board, so that the student could see/locate the area to be reached by their serves. A sheet covered the net so students could not see the target, and the oral feedback provided by the experimenter after each try was yoked to the oral feedback given to each member of the Contingent group. For both feedback groups, most of the oral feedback was failure feedback given the difficulty of the task. At the end of the treatment phase for the feedback groups, the experimenter told each participant his score (Non-contingent participants received a yoked total score) and asked the participant to evaluate his own performance by means of a single item (perceived failure), to evaluate the perceived contingency between his actions and outcomes during the task, and then to complete causal attribution and success expectancy questionnaires (described below).

To occupy the Control group students for an equivalent amount of time as the initial (treatment) task took for the other two groups, each of the Control group students performed a simple task—throwing a badminton birdie (30 tries) over a badminton net, without a target to be reached, with no indication (visual or oral) of “success” or “failure”, and with no score provided. The experimenter first presented the study, individually, and as follows: “*this task identifies pupils capable of serving and reaching the opposing ground*”. The Control group students were able to see where the birdie landed as there was no sheet covering the net. The Control group participants were not given a performance score and did not complete any questionnaires in this phase.

**Test phase:** During the Test Phase, participants in each of the three groups were given the same task that was experienced by the Non-contingent-group during the treatment phase (underarm serves, with the sheet covering the net). In all the groups, participants received the same information as that delivered to the Non-contingent group during the Treatment phase and the board/diagram was also present. Each participant received contingent feedback after each of twenty obligatory serves. After the twenty obligatory serves, each participant was then free to continue or not for ten additional serves without feedback. At the end of the Test Phase, the participants completed the causal attribution and success expectancy questionnaire.

## RESULTS

**Causal Attributions:** Personal Control scores were better overall in the treatment phase ( $M = 5.71, SD = 2.19$ ) than in the test phase of the experiment ( $M = 4.75, SD = 1.99$ ),  $F(1, 32) = 6.42, \eta_p^2 = .167, p = .016$ , indicating an overall reduction in perceived personal control during the experiment. In addition, participants in the Contingent feedback group ( $M = 6.21, SD = 1.90$ ) attributed their performance more to controllable causes than did the Non-contingent feedback group ( $M = 4.11, SD = 1.67$ ),  $F(1, 32) = 17.31, \eta_p^2 = .351, p = .000$ . This difference was significant both in the treatment phase,  $t(32) = 3.18, d = 1.09, p = .003$ , which supports Hypothesis 1 (initial effect), and in the test phase,  $t(27.35) = 3.56, d = 1.22, p = .001$ , which supports Hypothesis 2 (residual effect). In the test phase, participants in the Control group ( $M = 5.08, SD = 1.92$ ) attributed their performance more to controllable causes than did the Non-contingent group ( $M = 3.64, SD = 1.17$ ),  $t(26) = 2.44, d = .93, p = .022$ , which also supports Hypothesis 2 (residual effect). Examination of test phase Personal Control means in the Contingent ( $M = 5.73, SD = 2.07$ ) and Control groups showed they did not differ,  $t(28) = .872, d = .32, p = .393$ .



**Success Expectancy:** Participants in the Contingent group ( $M = 36.00, SD = 17.16$ ) reported higher success expectancy than did the Non-contingent group ( $M = 22.48, SD = 13.66$ ),  $F(1, 32) = 6.94, \eta_p^2 = .178, p = .013$ . This group difference was significant both in the treatment phase,  $t(32) = 2.25, d = .78, p = .031$ , which supports Hypothesis 1 (initial effect), and in the test phase,  $t(32) = 2.81, d = .97, p = .008$ , which supports Hypothesis 2 (residual effect). In the test phase, participants in the Control group ( $M = 30.45, SD = 17.37$ ) had higher success expectancy than the Non-contingent group ( $M = 21.15, SD = 12.36$ ),  $t(26) = 1.65, d = .62, p = .054$  (one-tailed), which also supports Hypothesis 2 (residual effect). Test phase success expectancy did not differ for the Contingent ( $M = 35.22, SD = 16.22$ ) and Control groups,  $t(28) = .768, d = .28, p = .449$ .

**Performance:** Performance scores were worse in the treatment phase ( $M = 20.72, SD = 3.70$ ) than in the test phase of the experiment ( $M = 26.32, SD = 6.86$ ),  $F(1, 32) = 17.98, \eta_p^2 = .360, p = .000$ , indicating an overall improvement of performance during the experiment. Moreover, the Contingent group ( $M = 25.69, SD = 5.03$ ) performed better overall than the Non-contingent group ( $M = 21.35, SD = 5.54$ ),  $F(1, 32) = 10.04, \eta_p^2 = .239, p = .003$ . But as shown in Figure 1, a Group × Experiment Phase interaction indicated the group difference was only significant in the test phase (Hypothesis 2),  $t(32) = 4.28, d = 1.47, p < .001$ , and not in the treatment phase,  $t(32) = 1.13, d = .39, p = .265$ ;  $F(1, 32) = 19.35, \eta_p^2 = .377, p = .000$ . Each group’s mean performance in the initial (treatment) task was comparable, and only the Contingent feedback group showed improved performance from treatment to test phase. In the test phase, participants in the Control group ( $M = 30.90, SD = 10.68$ ) performed better than the Non-contingent group ( $M = 21.15, SD = 6.70$ ),  $t(25) = 2.89, d = 1.13, p = .007$ , which also supports Hypothesis 2 (residual effect). Examination of test phase performance means in the Contingent ( $M = 35.22, SD = 16.22$ ) and Control groups showed they did not differ,  $t(27) = .146, d = .06, p = .884$ .

**Persistence:** There was a significant univariate effect of Group,  $F(2, 45) = 21.34, \eta_p^2 = .498, p = .000$  in the free period of the test phase. Participants in the Contingent group ( $M = 9.61, SD = 1.42$ ) practiced their serve more often than the Non-contingent group ( $M = 4.50, SD = 3.96$ ),  $t(18.4) = 4.88, d = 1.76, p < .001$ . Similarly, in the free period those in the Control group ( $M = 9.67, SD = 0.77$ ) practiced their serve more often than the Non-contingent group,  $t(16.52) = 5.08, d = 1.69, p < .001$ . Both findings support Hypothesis 2 (residual effect). Examination of persistence means in the Contingent and Control groups showed they did not differ;  $t(28) = .123, d = .05, p = .903$ .

## CONCLUSIONS/IMPLICATIONS

The main results indicate that non-contingent feedback delivered after an initial single task appears to induce helplessness deficits in performance and persistence on a subsequent task. Since parents, teachers, and coaches are often faced with delivering feedback following disappointment or failure, it is important to understand what factors foster a renewed desire to persist despite the setback, and those that do not. The clear implication that is supported by the results of the present study is the importance of providing feedback that is contingent on achieved performance, whether it is positive (success) or negative (failure) feedback. When the feedback is accurate (contingent on performance), performance tends to be viewed as more personally controllable, thus positively influencing success expectancies, subsequent performance, and a willingness to continue to try to do better. However, when feedback is not contingent on performance, performance tends to be viewed as less personally controllable, which reduces expectancy about future success, that, in turn, affects future performance levels and reduces the willingness to continue to try to do better.

(Contact the first author for further information about the study: nhiggins@stu.ca )