

Classroom Context and Student Ability as Influences on Teacher Perceptions of Classroom Control

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Two studies examined teacher cognitive processes concerning personal control in the classroom. The extent to which teachers perceived classroom control and expected successful outcomes with high- and low-ability students were contrasted within five different hypothetical classroom contexts. The results indicate that high-ability students are perceived as more controllable than low-ability students; teacher-initiated interactions are perceived as providing more control than student-initiated interactions; the setting has effects on perceived control of interaction duration; and interactions with high-ability students are seen as more likely to lead to successful outcomes than interactions with low-ability students.

Three dimensions may be posited (cf. Cooper & Baron, 1977) as causal influences on teachers' classroom control perceptions and success estimations for an instructional interaction: interaction initiator (teacher or student), interaction setting (public or private) and performance expectations for the involved student (high or low). It can also be posited (cf. Cooper, in press) that three kinds of control are involved in these teacher judgments: control over timing, content, and duration. This article presents two studies examining the relation between interaction context and teacher perceptions of classroom control.

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STUDY I

METHOD

Subjects

Seventy-eight teachers (approximately 90% female) attending an advanced education class at the University of Missouri-Columbia, participated in the experiment. Participants who reported teaching at the college level or at both the primary and secondary level were excluded from the sample on an a priori basis. This left a sample of 58 teachers, two of whom were subsequently randomly removed from the sample to simplify the statistical analysis.

Procedure

In a regular class session, participants were told that the study concerned “teachers, their students, and some specific conditions occurring in classrooms.” A booklet was distributed describing ten “typical classroom encounters.” The ten encounters consisted of an interaction, with either a high- or low-ability student, which was defined as “quality of performance in terms of tests and exercises with academic content,” in one of five settings. The ten encounters were each presented on a separate page and, after the encounter description, teachers were asked to answer three questions. They were also advised that answers on one page should be independent of answers on other pages. The order of the descriptions was randomly determined in each booklet to insure counterbalancing of practice and/or fatigue effects. The final page of each booklet asked teachers for personal background information such as sex, grade levels taught, years of experience, and location of present school.

Independent Variables

Individual differences. Responses on the background information page were used to create two crossed distinctions between teachers: grade level taught and years of teaching experience. Median splits were used to define teachers in primary school (grades K-5) and secondary schools (grades 6-12) and teachers with either little experience (less than four years teaching) or much experience (4-21 years). Thus, four between-teacher conditions were created with 14 individuals in each.

Student ability. This variable was obtained by requesting the initials of three students from the teacher’s class for each of two quality-of-performance levels: *high* and *low*. This information was requested on an instruction page at the beginning of the booklet. The gist of the instructions was

Students vary in many ways, however on the following pages we are concerned only with academic ability. Academic ability can be defined as the quality of performance in terms of tests and class exercises with academic content. In your class(es) you undoubtedly have students who are consistently either high or low in academic ability [Teachers were then asked to list the initials of three high- and three low-performance quality students.] . . . The reason for putting three initials is to insure that particular characteristics of any one student will not influence your responses. When you answer the questions on the following pages consider what the three students have in common.

Classroom situations. Five classroom situations were described as the teacher either working with a group or on an individual basis. The situation further specified whether the teacher or student asked an academic-content question. Because teachers working with groups frequently call on either volunteers (hand-raised) or nonvolunteers (hand-not-raised) this distinction was also made in the descriptions.

- 1) Teacher-Initiated Public Interaction with a Raised Hand—"You are addressing the class as a group. You ask an academic question. A (high/low)-ability student raises a hand, and you call on this student to answer."
- 2) Teacher-Initiated Public Interaction with No Raised Hand—"You are addressing the class as a group, and you have just asked an academic question. You call on a (high/low)-ability student to answer although the student has not raised a hand."
- 3) Student-Initiated Public Interaction—"You are addressing the class as a group. A (high/low)-ability student raises a hand, and you call on this student. The student asks an academic question."
- 4) Teacher-Initiated Private Interaction—"You are working with students in your class on an individual basis. You ask a (high/low)-ability student to work with you, and then you ask an academic question."
- 5) Student-Initiated Private Interaction—"You are working with students in your class on an individual basis. A (high/low)-ability student comes up to you, and asks you an academic question."

As indicated, the five situations were presented once each for high- and low-ability students, creating ten ability-by-situation combinations. Thus, the expectation level and situation factors were within-teacher variables with each teacher responding to all ten conditions.

Dependent Variables

On each page, after requesting that teachers rewrite the initials of the relevant high- or low-expectation students, three dependent measures were assessed. Feelings concerning personal control over *content* were obtained from responses to the question, "How much control do you feel you have over the subject matter of this encounter?" Responses could range from (1) no control at all to (6) total control. Perceptions of control over *duration* of the interaction were assessed by the question, "How much control do you feel you have over how long this encounter will last?" Response alternatives were identical to those used for the content control question. Finally, a third question assessed expectations for success by asking, "How likely is this interaction to end in success?" The six alternatives ranged from (1) very unlikely to (6) extremely likely.

In sum, each teacher responded to ten ability by situation (2 x 5) descriptions with grade level taught and years of experience (2 x 2) serving as between-teachers factors.

Analytic Procedure

For the two control questions, a preliminary analysis was performed using a four-way (2 x 2 x 2 x 5) multivariate analysis of variance with two dependent measures. Those effects using this procedure which were found significant then underwent univariate analysis of variance for each dependent measure separately. Multiple

arrayed means for significant ANOVA effects were then tested using Newman-Keuls ordered means comparisons. (The MANOVA procedure tests the general control hypotheses and protects against some chance findings because so many inference tests are conducted.) For likelihood of success, a single four-way ANOVA was performed.

RESULTS

Perceptions of Control

The multivariate analysis of variance revealed four significant effects. The Wilks' Lambda criteria for student ability (high vs. low) was 0.87 having an associated F value of 3.76 ($df = 2,51$; $p < .03$). This indicated that for the two control questions, the multivariate centroid for high-ability students was higher than for those with low-ability. Differences were also obtained for the five situations ($L = .89$; $F = 2.99$; $df = 8,414$, $p < .003$), as well as the ability by situation interaction ($L = .92$; $F (8,414) = 2.33$, $p < .02$).

Control of content. Analysis of the teachers' perceptions of control over content revealed significant main effects for student ability ($F (1,52) = 7.61$; $p < .008$), and situation ($F (4,208) = 5.38$, $p < .0004$). Table 1 presents the related means. Teachers felt more control over content when interacting with high- than low-ability students and also varied perceived control of content over situations. The interaction of ability with the situation was also significant ($F (4,208) = 3.27$, $p < .02$). Newman-Keuls tests revealed that for high-ability students, teachers reported less control over communication content in the student-initiated than teacher-initiated exchanges. For low-ability students, less control was reported for the student-initiated public situation than any private situation or for the raised-hand instance. Comparisons across ability conditions revealed that teachers felt more content control when they initiated the exchange with high- as compared to low-ability students. Content control did not differ between high- and low-ability students when the student initiated the interaction, though the means bear the same relations as for teacher-initiated exchanges.

TABLE 1
Means for Teacher's Perception of Control Over Content and Duration Given Situation and Student Ability—Study I

Situation	Content			Duration		
	Student Ability			Student Ability		
	High	Low	Mean	High	Low	Mean
Raised hand	5.02 _a	4.57 _{bc}	4.79	4.84 _a	4.55 _{bc}	4.70
Teacher public	4.96 _a	4.48 _{bcd}	4.72	4.77 _{ab}	4.43 _c	4.60
Student public	4.43 _{cd}	4.30 _d	4.37	4.66 _{abc}	4.54 _{bc}	4.60
Teacher private	5.00 _a	4.71 _b	4.86	4.80 _{ab}	4.66 _{abc}	4.73
Student private	4.73 _b	4.71 _b	4.72	4.69 _{ab}	4.69 _{ab}	4.69
Means	4.83	4.56		4.75	4.58	

Note. Means not sharing a common subscript differ significantly ($p < .05$) by a Newman-Keuls test. Newman-Keuls were conducted on the ten ability-by-situation means.

TABLE 2
*Means for Teacher's Perceptions of Likelihood of Success Given
 Situation and Student Ability—Study I*

Situation	Student Ability		
	High	Low	Mean
Raised hand	5.25 _a	4.13 _d	4.69
Teacher public	4.66 _{bc}	2.96 _e	3.81
Student public	5.20 _a	4.18 _{cd}	4.69
Teacher private	5.25 _a	4.29 _{bcd}	4.77
Student private	5.21 _a	4.63 _b	4.92
Means	5.12	4.04	

Note. Means not sharing a common subscript differ significantly ($p < .05$) by a Newman-Keuls test.

Control over duration. With regard to teachers' perceptions of control over duration, the ANOVA resulted in significant effects for the ability ($F(1,52) = 4.65, p < .04$), and ability-by-situation ($F(4,208) = 2.37, p < .06$) effects. Group means and the Newman-Keuls analysis for interaction results are reported in Table 1.

As expected, teachers felt greater duration control when interacting with high- than low-ability students. Comparisons of means underlying the ability-by-situation effect revealed no differences between the high-expectation encounters. For low-ability students, teachers reported less duration control for the self-initiated public situation without a raised hand than for the student-initiated private situation. Across conditions, teachers reported more control over duration when high-ability students respond to teacher-initiated public interactions than when low-ability students respond. This finding holds for both voluntary (hand-raised) and nonvoluntary (hand-not-raised) situations.

Likelihood of success. The analysis of the teachers' ratings for likelihood of success revealed a significant main effect for student ability ($F(1,52) = 79.85, p < .0001$); more success was expected with high- than low-ability students. Situation ($F(4,208) = 30.39, p < .0001$) and the interaction of ability and situation were also significant ($F(4,208) = 6.76, p < .0001$). Means for these results are shown in Table 2.

Teachers' expectations for success were lowest when directing a public question to a student who had not raised his/her hand. For high-ability students this was the only significantly different situation. For low-ability students, less success was expected by teachers in any public situation than in a student-initiated, private situation. In making contrasts between low- and high-ability students, it was found that the lows were seen as significantly less likely to succeed in every situation.

STUDY II

METHOD

Subjects

Thirty-three teachers, mostly female, were participants. These teachers were currently teaching fourth grade in the Tulsa, Oklahoma, school district. They had volunteered to participate in a study unrelated to the present effort.

Procedure

All participants received booklets identical to those used in Study I with a *single* alteration. The question "How much control do you feel you have over *when* this encounter will occur?" was added to the three Study I questions.

Analytic procedure

A preliminary multivariate analysis of variance (2 x 5) was conducted with the three control measures as dependent variables. Those effects found significant using this procedure then underwent univariate analyses of variance for each dependent measure. Means of significant multiply arrayed effects were then tested with Newman-Keuls ordered comparisons.

RESULTS

Perceptions of Control

The multivariate analysis of variance revealed significant effects for student ability (Wilks' Lambda = .65; $F(3,30) = 5.18, p < .005$) and for situations (Wilks' Lambda = .48; $F(12,333) = 8.80, p < .0001$). No effect was obtained for the ability by situation interaction.

Control over content. Teachers reported greater control over subject matter when dealing with high- than low-ability students ($F(1,32) = 5.22, p < .03$). A significant main effect for a situation influence on content control was also found ($F(4,128) = 9.49, p < .0001$). As Table 3 reveals, the greatest control over the subject matter was perceived by teachers when they initiated a private interaction or when they called upon a student with a raised hand. Thus, Study II replicated the Study I ability effect and showed a more general initiator effect.

Control of duration. No statistically significant effects were found. Means did reveal, however, that control of duration was perceived greater for high-ability than low-ability students in every situation and the ability main effect did approach significance ($F(1,32) = 3.06, p < .09$). Means were also consistent with the Study I

TABLE 3
Means for Teacher's Perception of Control Over Content and Timing Given Situation and Student Ability—Study II

Situation	Content			Timing		
	Student Ability			Student Ability		
	High	Low	Mean	High	Low	Mean
Raised hand	4.94	4.50	4.72 _a	4.56	4.08	4.32 _{ab}
Teacher public	4.79	4.41	4.60 _b	5.00	4.85	4.92 _a
Student public	4.38	4.14	4.26 _b	4.08	3.58	3.83 _{bc}
Teacher private	5.00	4.73	4.86 _a	4.91	4.62	4.76 _a
Student private	4.06	3.94	4.00 _b	3.61	3.26	3.44 _c
Means	4.63	4.34		4.43	4.08	

Note. Means not sharing a common subscript differ significantly ($p < .05$) by a Newman-Keuls test.

TABLE 4
*Means for Teacher's Perceptions of Likelihood of Success Given
 Situation and Student Ability—Study II*

Situation	Student Ability		
	High	Low	Mean
Raised hand	5.18 _a	3.44 _e	4.31
Teacher public	4.41 _{bc}	2.76 _f	3.58
Student public	4.76 _b	3.85 _{dc}	4.30
Teacher private	5.09 _a	3.82 _{de}	4.46
Student private	5.12 _a	4.03 _{cd}	4.58
Means	4.91	3.58	

Note. Means not sharing a common subscript differ significantly ($p < .05$) by a Newman-Keuls test.

finding that with low-ability students duration control was perceived greater in a private setting.

Control of timing. Greatest control of timing was reported when dealing with high-ability students ($F(1,32) = 12.62, p < .002$). A significant effect for situation on this item was also found ($F(4,128) = 22.28, p < .0001$). As seen in Table 3, greater control over timing was reported for the teacher-initiated situations.

Likelihood of success. A significant student ability-by-situation interaction was revealed on the likelihood of success question. The means and results of Newman-Keuls comparisons for this item are found in Table 4. A significant main effect for ability was revealed ($F(1,32) = 50.29, p < .0001$). As in Study I, the likelihood for a successful interaction was seen as greater for high- than low-ability students in every situation. In addition, there was a significant main effect for situation ($F(4,128) = 18.11, p < .0001$) and a significant student ability-by-situation interaction ($F(4,128) = 3.25, p < .02$). An examination of Table 4 reveals that success likelihood was least when the student is called on without a raised hand. Unlike Study I, teachers also felt a greater likelihood for success with high-ability students when the interaction was private. Similar to Study I, for low-ability students teachers tended to report a greater chance for success when the *student* initiated the interaction.

DISCUSSION

The following conclusions seem warranted based on the results of these studies:

- 1) Interactions with high-ability students are seen as inherently more controllable than with low-ability students. This result was found in both studies when subject matter control was the concern, in one study for duration control (with consistent means in the other study), and in the only timing control assessment.
- 2) Interaction initiator has a reliable influence on perceptions of subject matter control. In both studies, self-initiations were seen as affording teachers more control over content than student initiations. Timing control was also greater for teacher initiations, as found in Study II. Duration control was unaffected by initiator.

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- 3) The interaction setting, whether it was public or private, had a fairly specific effect on duration control and no effect in other control domains.

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