Variables that Can Affect Student Ratings of their Professors

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ABSTRACT

Attribution theory was applied to help predict the results of an experiment that examined the effects of three independent variables on students' ratings of their professors. The dependent variables were students' perceptions of whether the professor caused the students' grades and student satisfaction with their professor. The results suggest that when students expected "D"s, many of those students were likely to believe that their professor was the cause of why students received "D"s. Conversely, when students expected to receive "A"s fewer students were likely to believe that the professor caused students' grades. This finding is consistent with the prediction of attribution theory. Another finding was that students were more satisfied with a caring professor who gave the students "D"s than they were with an uncaring professor who gave students "A"s. Additionally, the results indicated that there was an interaction effect of students' grades and the caring of the professor on student satisfaction with the professor.

INTRODUCTION

For many years colleges/universities have sought student input into the process through which professors' teaching is rated. However, there are several problems with students rating professors' teaching. For example, teaching is a type of credence service (Deighton 1992). Therefore, students are likely to find it very difficult to accurately rate the quality/effectiveness of a professors' teaching.

The ability to accurately rate teaching would be enhanced if students had some specialized knowledge and/or training that focused on teaching. Unfortunately, few students have this specialized knowledge or training. Therefore, many students may simply lack a high level of ability to accurately rate the teaching of their professors. In particular, if the differences among professors' teaching are small, some students may lack the knowledge or training to accurately identify these small differences.

Another problem associated with students rating professors' teaching is that some students are likely to use variables to rate professors' teaching (e.g. students' grades, professors' ages and/or gender) that are inaccurate indicators of professors' teaching (Arbuckle & Williams 2003; Davis 1992). Therefore, it might be important to have additional indicators of professors' teaching (e g., student satisfaction with their professors) because students might be more able to accurately rate their satisfaction with their professors than rate professors' teaching.

After many years of research, it remains unclear whether students' grades affect students' ratings of professors' teaching. Some research indicates that student ratings are effected by students' grades (Clayson, Frost, & Sheffet 2006; Ewing 2012). Conversely, other research indicates that students' grades have virtually no affect students' ratings (Grant 2007; Centra 2003) of professors' teaching. Consequently, there is a need for additional research that can help resolve this controversy concerning whether students' grades affect student ratings of their professors. Additionally, at some universities students almost feel entitled to an "A" and students believe that professors need to justify any grade that is less than an "A" (Alper 1993). Consequently, there is a need for additional empirical evidence concerning students' ratings of professors when students receive a grade that is less than an "A."

Some professors might be reluctant to give students low grades because of the concern that

students will retaliate by giving the professors low ratings on student ratings of the professors' teaching (e.g., Benton 2006). Indeed, the fear of this type of retaliation could be one of the causes of grade inflation. Although researchers (e.g., Clayson, Frost, & Sheffet 2006) indicate that there could be a reciprocity effect between students' grades and student ratings of professors, there is limited empirical evidence that identifies how likely to occur is this form of student retaliation. Additionally, there is little empirical evidence concerning whether there are variables that professors can use to moderate or prevent this type of retaliation. Consequently, it is important to acquire new empirical evidence concerning whether students are likely to believe that the professor caused students' grades and what actions professors can take to avoid being blamed when students' earn low grades. For example, if students believe that the professor caused the students' low grades, some students might retaliate. Conversely, if students do not believe (i.e., blame) that the professor was the cause of students' low grades, students might be less likely to retaliate.

One purpose of this paper is to provide empirical evidence that helps to identify the effects of students' grades, caring of the professor, and the amount of time the student spent on the course on whether students believe that the professor caused the students' grades. Evidence concerning the effects of students' grades is needed because whether grades affect student ratings of professors remains controversial. Empirical evidence concerning the effects of caring of the professor is needed because this variable might help prevent students from blaming the professor for the students' low grades. Empirical evidence concerning the effects of the amount of time students spent on the course is needed because it needs to be determined whether students consider this variable when rating their professors. Additionally, identifying the effects of these three variables might help provide a more comprehensive explanation of the cognitive process that students use when rating their professors.

Another purpose of this paper is to provide empirical evidence concerning whether attribution theory (Weiner 1980) can be applied to develop a deeper understanding of the cognitive process that students use when rating their professors. For example, can attribution theory help explain how students develop their perceptions of whether their professors caused students' grades and/or help explain how students develop their level of satisfaction with their professors? Rating student satisfaction with their professors is not a substitute for measuring student ratings of professors' teaching effectiveness. Instead, it could be used in conjunction with scales of professors teaching effectiveness to provide a more comprehensive understanding of the professors' performances in the classroom. Students' satisfaction with their professors may provide accurate, additional information concerning whether the professor is or is not an excellent teacher.

BACKGROUND

The Effects of Three Independent Variables

A caring professor is defined as a professor who demonstrates a real interest in the student becoming a successful individual and has real respect for the student (Deiro 2003). For example, if asked for advice, the professor is readily available to provide needed advice on the student's academic situation and/or on some personal situations, too. However, a caring professor understands his/her limitations, too. That is, the caring professor is a professor that in some situations should only be a sympathetic listener because he/she is not a trained psychologist, trained psychiatrist nor a family counselor.

Students might experience a sense of gratitude toward a very caring professor because of the belief that being a very caring professor goes beyond the normal responsibilities of being a professor (Gotlieb & Milliman 2005;Hareli & Weiner 2002). Therefore, students might highly value a professor who is very caring. Attribution theory might be applied to help explain the effects of very caring professors and uncaring professors.

Attribution theory suggests that when situations are deemed successes (i.e., students expect "A"s) this will activate a different cognitive process than is activated when students are in a situation deemed a failure (i.e., students expect "D"s). The concept of defensive attributions (i.e., attributing an individual's successes to variables within the individual [e.g., how much time the student spent on the course, student's intelligence] and failures to variables outside of the individual [e.g., caring of the professor, bad luck]) is a general tendency of individuals (Schiffman & Kanuk 2010).

This general tendency might be moderated by at least one variable when predicting the effects of grades on student perceptions of whether the professor caused the students' grades. That is, students might continue to experience the defensive attribution processes (attributing success [i.e., an "A"] to internal variables and attributing failure [i.e., a "D"], to external variables). However, if the professor is perceived as very caring, this perception might result in the students placing less blame for failure on a very caring professor and give some credit to a caring professor when the student experiences a success. This would occur because students might have a sense of gratitude toward a very caring professor (Gotlieb & Milliman 2005). Consequently, when students perceive the professor as very caring, this perception is likely to motivate students to look for other external variables and/or look at internal variables (e.g. how much time students spent on the course) that could be attributed as the cause of students' failures. Conversely, if the professor is perceived as uncaring, there is little motivation for students to look beyond the uncaring professor as the cause of the students' failure (i.e., "D.")

Identifying the effects of how much time the students spent on a course on students' perceptions of whether the professor caused the students' grades and on student satisfaction with the professor is necessary to provide a comprehensive test of attribution theory. That is, attribution theory indicates that an internal variable (i.e., how much time the student spent on the course) would have a greater effect when the students experience success ("A"s) in the course.

The previous discussion leads to the following hypotheses:

H_1 There will be statistically significant difference between students' perceptions of whether the professor caused the grade depending on whether the student expects a "D" or an "A." That is, attribution theory predicts that when students expect "D"s they will more strongly believe that the professor caused their grade than when they expect "A"s.

When a basic principle (i.e., defensive attribution) of a theory predicts a main effect, it is useful to determine whether the basic principle is supported by the empirical evidence. However, main effects have little meaning when there are predicted interaction effects.

H_2 There will be a three-way interaction effect of students' grades, caring of the professor, and how much time the students spent on the course on students' perceptions that the professor caused the students' grades.

This three-way interaction would occur for two reasons. First, the effects of caring of the professor and how much time the student spent on the course would be different depending on whether the student expected an "A" or a "D." These differences would occur because when the student expects an "A" it activates the "success" type of information processing that is different from the type of information processing that activated when the student expects a "D" (i.e., the failure type of information processing). Second, when the professor is perceived as very caring, students' sense of gratitude toward the caring professor would affect attributions of whether the very caring professor caused the students grades (Gotlieb & Milliman 2005). Consequently, the effects of a caring professor would be different from the effects of an uncaring professor within the success (i.e., "A") information processing and the failure (i.e. "D") information processing system. H_3 to H_6 more clearly describes the predicted effects within the three-way interaction.

H_3 When students expect "A"s and the professor is perceived as uncaring, the normal attribution information processing can be expected to occur. That is, students will focus on internal variables (e.g., their own activities) when deciding who caused their grades. Therefore, how much time the student spent on the class will affect student attributions of whether the professor caused the grade. That is, if the students spent twice the time they will more strongly believe that the uncaring professor caused the grade than if they spent half the time.

H_4 When students expect "D"s and the professor is perceived as uncaring, students will attribute the failure to external variables (e.g., the professor) for their low grades. Within this condition, the basic defensive attribution processes will occur. That is, the uncaring professor will be perceived as responsible for the students' grades. How much time the student spent on the course will not affect

students' perceptions that the professor caused the students low grades.

H5 When the professor is perceived as very caring, the basic attribution process will be moderated. A sense of gratitude toward the caring professor is the reason that these effects will occur. Consequently, students will give a caring professor some credit for their "A" regardless of how much time they spend on the course. Therefore, the difference between the effect of the student spending twice as much time and the student spending half as much time on whether the professor caused the student's grade would not be statistically significant.

H6 When students expect "Ds" from the very caring professor there would be a statistically significant difference between students spending twice the time vs. half as much of the time on whether the professor caused the students' grade. That is, if the professor is very caring, students will look beyond the professor (e.g., external variables) and consider internal variables (i.e., how much times students spent on the course) when attributing the causes of their "D."

H7 There would be a three-way interaction effect of students' grades, caring of the professor, and how much time students spent on the course on student satisfaction with the professor. This effect would be similar to the three-way interaction effect that occurs with students perceptions of whether the professor caused the students' grades.

H8 Students will be more satisfied with a caring professor that gives students "D"s than they will be satisfied with an uncaring professor that gives students "A"s. This is a stringent test designed to help determine whether the effects of grades on student satisfaction with their professor is affected by how caring is the professor.

METHOD

Role Playing Methodology

Role playing using scenarios is an acceptable methodology for an experiment (Smith, Bolton, & Wagner 1999). One of the reasons it was used in this experiment was because the experiment required random assignment to treatments and some of the treatments would be unfair to some of the students. For example, it would be unfair to randomly give some students the expectation of a "D" in the class regardless of what the student did and then randomly give other students the expectation of an "A" regardless of what those students did in that class. Similarly, it would be unthinkable to randomly assign some students to a very caring professor while other students were randomly assigned to an uncaring professor. A similar problem existed with the amount of time spent on the course. However, these conditions could be created using scenarios and scenarios would not be unfair to the students.

Research Design

The research design was a 2 X 2 X 2 full factorial design. Additionally, there were two covariates in the experiment, the students' grade point averages and the class standing of the students. Students' grade point average needed to be controlled because "A" students might simply be more dissatisfied with a grade "D" than would be "C" students. Class standing needed to be controlled because freshman and sophomores taking mostly general education courses might have different expectations of their professors than would juniors and seniors who are taking mostly courses in their major. Each student was exposed to a single scenario. In the scenarios each student were told to assume that the student was "Pat." The name of "Pat" was selected because Pat is a name that is given to both genders. Therefore, students of both genders could easily identify with the name of "Pat" (Bendapudi & Leone 2003). The number of students that participated in the experiment was 170.

In one-half of the scenarios, students were told that "Pat" expected an "A" and in the other half, students were told that "Pat expected to receive a "D" in the class. In one-half of the scenarios, students were told that "Pat" spent twice as much time on this class as the student normally spent

on a class, but in the other half of the scenarios, students were told Pat spent one-half the time on this class that "Pat" normally spent on a class. In one-half of the scenarios, the professor was described as very caring while in the other half of the scenarios the professor was described as very uncaring. Manipulation checks were done to examine whether the manipulations were perceived as intended. Students were asked, "How much time did Pat spend on the class." The end points of the seven-point scale were "very little time on the class" and a "lot more time than the usual class." The means of the two time treatments for the scale were 1.92 vs. 4.90, $t = 13.27$, $p < .001$. These results indicate that the time manipulation was done effectively. Students were asked to rate how caring the professor was on a seven-point scale. The end points of the scale were, "Professor was very caring" and "Professor was very uncaring." The means for the two treatments on this scale were 6.16 vs. 2.38, $t = 23.12$, $p < .001$. This result indicates that the caring manipulation was done effectively. Students were asked about what grade Pat expected to receive in the course. There were choices ranging from "A" to "F." Students who were exposed to the scenario in which Pat expected to receive an "A" selected "A" 94% of the time. Conversely, students exposed to the scenario in which Pat expected to receive a "D" selected "D" 91% of the time. Therefore, this manipulation check indicates that the grade manipulation was done effectively. Consequently, manipulation checks found that all of the manipulations were effective.

The four-item scale of whether the professor caused the grade was taken from a scale developed by Gotlieb and Milliman (2005). The scale items were the following: "Pat would believe that the effort that the professor put into teaching the class caused Pat to receive the ("A" [(Outstanding] or "D" [Failure]) grade. Pat would believe that the professor's teaching ability was the primary reason that Pat received this ("A" [Outstanding] or "D" [Failure]) grade. Pat would believe that the professor's ability as a communicator caused Pat to receive the ("A" [Outstanding] or "D" [Failure]) grade. Overall, Pat would believe that the professor was mostly responsible for the fact that Pat got a ("A" [Outstanding] or "D" [Failure]) grade for this course." Cronbach's Alpha for the scale was .89.

The three-item scale of satisfaction with the professors was taken from a scale developed by Oliver & Swan (1989). Subjects were asked, "Rate how Pat would feel about this professor. The end points for the first scale item were the following: "very satisfied with this professor vs. very dissatisfied with this professor." The end points for the second scale item were "very pleased with this professor vs. very displeased with this professor." The end points for the third scale item were, delighted with this professor vs. terrible with this professor." Cronbach's Alpha for the scale was .97. All of the scales exceeded the level of Cronbach's Alpha (i.e., 70) deemed appropriate for scales used in research (Nunnally & Bernstein 1996).

RESULTS

Hypothesis 1 was supported and this finding supports attribution theory. That is, there was a statistically significant difference as to student perceptions of whether the professor caused the grade between those students who expected an "A" vs. those students who expected a "D." For example, students more strongly believed that the professor caused the grade when they expected a "D" (Professor caused the grade M [D] = 4.18 vs. M [A] = 3.42, $t = 3.53$, $p < .05$).

Hypothesis 2 was supported and the finding supports attribution theory. There was a three-way interaction effect of students' grades, caring of the professor, and how much time the students spent on the course on students' perceptions that the professor caused the students grades. ($F [1, 157] = 5.41$, $p < .05$) That is, the effects of caring of the professor and how much time the student spent on the course would be different depending on whether the student expected an "A" or a "D." These differences might occur because when the student expects an "A" it is likely to activate the "success" type of information processing that is different from the type of information processing that occurs when the student expect "D"s (i.e., the failure type of information processing). There were differences in effects depending on whether the professor was described as very caring or uncaring, too.

Hypothesis 3 was supported and this finding supports attribution theory. That is, when students experience a success (e.g., "A"s) from an uncaring professor, students will focus internally (i.e., how much time students spend on the course) when attempting to determine the cause of that success. Student perceptions of whether the un-

caring professor caused the grade depended on whether the student spent twice the time on the course or one-half the time on the course (M [twice the time] 2.92 vs. M [one-half the time] 2.24 t = 2.38, p < .Ø5). Nevertheless, this finding suggests that students will not give much credit to the professor for an "A" when they perceived the professor as uncaring.

Hypothesis 4 was supported and this finding supports attribution theory. That is, when students expected a "D" and the professor was uncaring, there was no statistical difference between students spending twice the time and spending one-half the time on student attributions of whether the professor caused the student's grade (M [twice the time] 4.82 vs. M [one-half the time] 4.97, t = .4Ø3, p > .Ø5). That is, students will not look to internal variables (how much time students' spent on the course) as the cause of failure (i.e. a "D"). Consequently, the uncaring professor is likely to be blamed for the students' "D"s regardless of the amount of time students spent on the course.

H5 was supported. That is, when the professor is perceived as very caring, this perception appears to modify the attribution process. When students expect "As," and the professor is viewed a very caring the difference between the effect of the student spending twice as much time and the student spending half as much time on whether the professor caused the student's grade was not statistically significant (M [twice the time] 4.42 vs. M [one half time] 4.1Ø, t = .832, p > .Ø5). This result suggests that when a professor is very caring, students will look beyond internal variables (e.g., within themselves) when attempting to determine the causes of their success. Consequently, they are likely to give credit to very caring professors for their "A"s regardless of how much time they spent on the course.

Hypothesis 6 was supported. When students expected a "D" and the professor was very caring there was a statistically significant difference between whether the student spent twice the time or one-half the time on whether the professor caused the students' grades (M [twice the time] 4.ØØ vs. M [one half the time] 2.85, t= 3.42, p < .Ø5). This result suggests that when the professor is perceived as very caring, students are likely to look at their own actions as possible causes of failure ("D"s), too.

Hypothesis 7 was not supported. The three-way interaction effect on students' satisfaction with their professors was not statistically significant (F [1,154] = 1.57, p > .Ø5). The other two-way interactions were not statistically significant (time X caring F [1,154] = 1.Ø5, p > .Ø5 and time X grade F [1,154] = 1.54, p > .Ø5). However, there was a statistically significant two-way interaction between students' grades and caring of the professor on students' satisfaction with their professors (F [1,154] = 3.91, p = .Ø5). This two-way interaction effect indicates that the effect of students' grades on student satisfaction with their professor depends on how caring is the professor and vice versa. The two-way interaction is described in the next paragraph

When a professor is perceived as uncaring there is a lower level of satisfaction with that professor regardless of students' grades (Satisfaction with the professor M [uncaring professor who gave students "A"s] 3.22 vs. M (uncaring professor who gave students "D"s} 2.14. When the professor is very caring, the level of satisfaction with the professor is higher regardless of the grade and the difference between grades is greater, too. Satisfaction with the professor M (caring professor who gave students "A"s) 5.78 vs. M (caring professor who gave students "D"s) 4.Ø4.

Hypothesis 8 was supported. That is, the results of the experiment indicate that students were more satisfied with a caring professor who gave the students "D"s than they were satisfied with an uncaring professor that gave the students "A"s (M [satisfaction with a caring professor who gave the students "D"s] 4.Ø4 vs. M [satisfaction with a uncaring professor who gave the students "A"s] 3.22, t= 3.35, p < .Ø5). This finding appears to provide support for the view that students feel a sense of gratitude toward a very caring professor. It also suggests that the effects of grades on student satisfaction with their professor is likely to affected by the extent to which the professor is perceived as very caring.

DISCUSSION

Student ratings of professors have been an integral element of higher education for many years. They will continue to have an influence on tenure, pay and promotion decisions concerning professors. Therefore, there is a need for a better understanding of the cognitive processes that students use when rating their professors. The

empirical evidence presented here could help to provide a greater understanding of those processes. Additionally, the empirical evidence presented here has provided additional information concerning the effects of some of those variables that are likely to influence student ratings of professors.

This research suggests that student ratings of professors can be influenced by at least one characteristic of the professor, the extent to which the professor is perceived as caring. This finding is consistent with previous research that suggests that other characteristics of professors (i.e., professor's age or gender) can influence student ratings. Additionally, research indicates that a professors' personality (Clayson & Sheffet 2006) can affect professors' ratings, too. This research suggests that students are likely to rate a very caring professor very differently from an uncaring professor.

This experiment provides additional empirical evidence which suggests that if a professor is viewed as very caring, that perception is likely to moderate the defensive attribution information processing that usually occurs. For example, a very caring professor is less likely to be blamed for a "D" than is an uncaring professor. Additionally, students are likely to give caring professors some credit for their "A"s, but give uncaring professor far less credit for the students' "A"s. Consequently, caring professors are likely to be rated differently (i.e., higher) than uncaring professors.

This research indicates that activities of the students (i.e., amount of time students spend on the class) can affect student ratings of their professors, too. This finding is consistent with previous research which suggests that students' ages or G.P.A. can affect students rating of their professors.

This experiment appears to provide some support for the view that the concept of defensive attribution can be applied to aid in understanding the cognitive process that students use when rating their professors. For example, the results of this experiment found that students are more likely to believe that the professor caused a "D" than they are likely to believe that the professor caused their grade of an "A."

This research suggests that students' grades might have a variety of effects on students' ratings of their professors. For example, this experiment appears to support the idea that an "A" might activate a different type of information processing than does a "D." Additionally, this research provides one possible explanation of why the effects of grades on student ratings of professors have been inconsistent. That is, this research suggests that there can be interaction effects of grades and other variables on student rating of their professors. Consequently, there might be some classroom situations in which students' grades strongly affect student ratings of professors and other situations in which students' grades have little or virtually no affect student ratings of professors.

Some of the problems associated with students rating professors' teaching effectiveness might not exist or exists to a much lesser extent when students are asked to rate their satisfaction with their professors. For example, students have the ability to rate their satisfaction with their professors. Additionally, students do not need special training or knowledge to rate whether they are satisfied with their professors. Consequently, students should be able to more accurately rate their level of satisfaction with their professors than rate professors' teaching effectiveness. Therefore, adding a scale of student satisfaction with their professors to student evaluation forms could be very useful when rating professors' performance in the classroom.

It is unclear whether very few students or many students would give professors low student ratings as a form of retaliation for the professor giving students' low grades. However, this research suggests that if a professor is perceived as uncaring, retaliation for low grades is more likely to occur. If many students are likely to retaliate, then it is essential to identify the cognitive processes through which this retaliation occurs so that professors could take actions to possibly prevent student retaliation for low grades.

Student ratings might be the result of the effects of a variety of variables whose influences on student ratings have not been fully identified, too. This research has provided some empirical evidence concerning the effects of three of the variables that are likely to have significant effects on student ratings of their professors. However, given the importance of student ratings, this area of educational research needs much more research attention.

LIMITATIONS AND FUTURE RESEARCH

There are a number of limitations that are associated with this experiment. Role playing is an appropriate method for conducting research. However, the information that was gathered by this experiment is information concerning how subjects say they would respond to different classroom situations. When students actually experience those situations, they might respond differently than was indicated in this research. This paper reports the results of a single experiment. These results need to be interpreted cautiously because the results need to be confirmed by a series of experiments. This experiment was conducted at a midsize public university in the Mid West. This experiment needs to be replicated at a variety of public and private universities in other sections of the country, too. This research has provided some empirical evidence that appears to provide part of the foundation for developing a deeper understanding of the cognitive processes through which students rate their professors. Additionally, this paper appears to provide new insight in to the effects of students' grades, caring of the professor, and how much time students spent on the course on student evaluations of their professors. However, future research needs to provide a more comprehensive understanding of the cognitive processes that students use when rating their professors.

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