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**Exploring the Relationship between Teacher Confirmation, Gender, and Student Effort in the College Classroom**

Laura C. Campbell  
SUNY Cortland

Kristen Campbell Eichhorn\*  
9 Lanigan Hall  
SUNY Oswego  
Oswego, NY 13126  
(t) 315-312-3524  
(e) [eichhorn@oswego.edu](mailto:eichhorn@oswego.edu)

Charles Basch  
Columbia University  
[ceb35@columbia.edu](mailto:ceb35@columbia.edu)

Randi Wolf  
Columbia University  
[wolf@tc.columbia.edu](mailto:wolf@tc.columbia.edu)

\*Please send all correspondences to the second author.

Laura C. Campbell (Ed.D., Columbia University, 2009) is an Assistant Professor at the State University of New York at Cortland). Kristen Campbell Eichhorn (Ph.D., University of Miami, 2003) is an Associate Professor at the State University of New York at Oswego. Charles Basch (Ph.D, University of Southern Illinois) is a full professor in the Department of Health and Behavior Studies, Teachers College, Columbia University. Randi Wolf (Ph.D., University of Pittsburgh) is an Associate Professor of Human Nutrition, Teachers College, Columbia University. The authors would like to thank Patricia Zybert, Linda Hickson, Elissa Perry, and Robert J. Schwarz, for their insightful contributions.

## Abstract

The purpose of this study was to explore relationships between teacher confirmation, gender, and student effort in a sample of college students. Teacher confirmation, defined as communication from teachers indicating that students are endorsed, recognized, and valued, was measured along with self-reported student effort in a cross-sectional sample of 672 undergraduate students at a north-eastern state university. The relationship (Pearson correlation) between teacher confirmation and student effort was .37 ( $p < .01$ ). No significant differences were found between the extent of teacher confirmation reported by male and female students or in students' ratings of male and female professors, and there were no significant interaction effects by gender in the relationship between TC and effort. Multiple regression analysis showed that, collectively, student gender, student age, class size, student's general effort, and interest in the class, accounted for ~ 28% of the variance in student effort. After controlling for these variables, teacher confirmation independently accounted for an additional 9% of variance in student effort. This research demonstrated that teacher confirmation is cross-sectionally associated with student effort. These findings support the suggestion that future teachers may need training in teacher confirmation skills. Future research is needed to examine the temporal relationship between teacher confirmation and learning outcomes and, if such relationships exist, the extent to which such relationships may be mediated by student effort.

“I only work hard for teachers I like!” said a third year undergraduate student. Effective teachers who influence students to increase their level of effort face many challenges. Booth-Butterfield (1992) illustrates this concept by recognizing that teachers must try to encourage positive relationships while also promoting learning that is affective, cognitive, and behavioral. Teacher confirmation is one positive instructor behavior that impacts student behavior and learning outcomes (Goodboy & Myers, 2008). Having an impact on student behavior is important to all educators, particular those developing teacher preparation programs. The purpose of this study is to examine teacher confirmation and its relationship to student effort and gender in the college classroom.

Ellis’s (2000) seminal study concerning teacher confirmation (TC) demonstrated significant relationships with respect to teacher-student interactions. Ellis defines TC as “the transactional process by which teachers communicate to students that they are endorsed, recognized, and acknowledged as valuable, significant individuals” (p. 266). Although the importance of TC has been increasingly recognized by researchers in recent years, (Ellis, 2000; Goodboy & Myers, 2008; Schrodt, Turman & Soliz, 2006; Turman & Schrodt, 2006), little is known about the impact of TC on aspects that affect student behavior. As TC continues to gain more recognition as a useful component for teachers to employ in their classrooms, researchers need to identify the influence it has, if any, on student effort. If the amount of effort a student puts into a class is related to TC, then educators would have a vested interest to incorporate confirming strategies in teacher education programs.

In a study to examine the relationship of student effort to class difficulty and student evaluations of professors, Heckert et al. (2006) found an unexpected gender relation. They surprisingly identified a “finding that females reported higher effort (than males); and all students reported higher effort for female instructors than male instructors” (p. 590). Similarly, this study will examine the gender of the teacher and the gender of the student to determine its relation to teacher confirmation and student effort.

#### *Rationale for the Study*

Based on this literature, this study aimed to establish teacher confirmation as a significant variable that influences student effort. Additionally, this study also investigated differences in teacher confirmation responses with respect to the gender of the student as well as the gender of the professor. The importance of observing the students’ responses in reference to the gender of the professor was to recognize whether teacher preparation courses (providing instruction on teacher confirmation as a strategy to influence student effort) for male and female professors need to be customized. Also, the importance of examining the difference in responses from male and female students was to recognize whether teacher preparation courses should also include different confirmation methods for male and female students.

Confirmation theory suggests that in order to reach an achievement of personal growth and development, people have an essential need to be validated by others (Dailey, 2006). Although “confirmation” theory can be dated back to Buber (1957), perceived teacher confirmation is a fairly recent concept. Although there is limited theory that directly relates to Perceived Teacher Confirmation, a few recent scholars have made some progress.

#### *Confirmation Literature*

Buber (1957) is essentially the first to acknowledge “confirmation” as possibly the most vital aspect of human interaction. He suggests, *active inclusion* which involves creating an atmosphere that allows a person to feel as though they are important or necessary to the outcome

of the events taking place. Also, he suggests, *imagining the real* which is when a person is able to empathize with what someone else is thinking and feeling. Buber further explains confirmation as a point in a relationship where one feels that the other person is able to recognize their uniqueness and not judge them but embrace it as an opportunity to help them find personal direction in life. Laing (1961) continued to research confirmation and found that the actions taken by one individual can affect the feelings of acknowledgement, recognition, and endorsement of another. Watzlawick, Bavelas, and Jackson (1967) also suggested that confirmation is the “greatest single factor ensuring mental development and stability” (p. 84). Similarly, Sieburg (1969) examined interactions between people and developed a system for evaluating confirming and disconfirming responses. Disconfirming behaviors result in feelings of inferiority (Sieburg & Larson, 1971). Confirming behaviors result in feelings of empowerment and satisfaction.

*Perceived Confirmation.* Sieburg (1973) designed the first tool for assessing perceived confirmation. As a result of this tool, two areas of study were developed. These areas were called observation and receiver perception of confirming and disconfirming behaviors (Ellis, 2004). Many researchers have studied aspects of observer confirmation (Bavelas & Chovil, 1986; Cook, 1980; Leth, 1977; Sundell, 1972) and perceived confirmation in the family context (Beatty & Dobos, 1992; Cissna & Keating, 1979; Clarke, 1973; Keating, 1977); however, there has been limited research in the area of perceived confirmation in the classroom context. Perceived confirmation is a critical component to thoroughly examine in the classroom because it may lead to significant strategies allowing future teachers to be more effective.

*Teacher Confirmation.* Leth (1977) initiated the development of perceived confirmation in the classroom; however, Ellis (2000) has taken the major steps to establish teacher confirmation (TC) in the foundation of the pedagogy. She developed the Teacher Confirmation Scale (TCS) and established concurrent validity with strong positive correlations with perceived caring and immediacy (2000).

Ellis (2000) also measured relationships between perceived teacher confirmation, affective learning, and cognitive learning. As a result of her study, she concluded that “teacher confirmation directly influences affective learning, and affective learning directly influences cognitive learning” (p. 285). As Ellis (2004) continued to pioneer the TC research, her next step was to determine whether or not the students who “perceive that their teachers exhibit confirming (or disconfirming) behaviors actually feel confirmed (or disconfirmed)” (p. 4). After Ellis demonstrated a strong correlation between the students’ feeling confirmed and teachers’ displaying confirming behaviors, she was able to identify distinct teaching conduct that confirms student significance of their existence in the classroom and “as human beings” (p. 7). The latest research by Ellis (2004) included a study that demonstrated a strong direct (negative) relationship between perceived teacher confirmation (PTC) and receiver apprehension. Receiver apprehension is defined as “the fear of misinterpreting, inadequately processing, and/or not being able to adjust psychologically to messages sent by others” (Wheeless, 1975, p. 263). A positive relationship was found between the effects of perceived TC on motivation, affective learning, and cognitive learning; receiver apprehension was identified as the mediator between these relationships. Ellis’s conclusion was significant because she identified that there is no hierarchy of confirmation behaviors, and she was able to build a TC construct.

One of the most recent studies advancing the concept of TC focused on associations between perceived teacher confirmation behaviors, students’ perceived understanding with their

teachers, and teacher credibility and evaluations in the college setting (Schrodt, Turman, & Soliz, 2006). This study supported a “confirmation process model” that demonstrates perceived understanding as a concept that acts as a mediator between perceived TC and two perception outcomes (teacher credibility and teacher evaluations); however the study found that perceived TC also directly correlates with teacher credibility and evaluations.

Finally, Goodboy and Myers (2008) manipulated teacher confirmation across three college lectures (confirming, somewhat confirming, and not confirming). Results suggested that in the confirming and somewhat confirming conditions, there were more positive student communication behaviors such as communicating with their instructor for relational, functional and participatory reasons than the not confirming condition. Students also reported greater cognitive learning, affective learning, motivation, and student satisfaction scores in the confirming conditioning. This study aims to continue this line of research and examine the variance accounted for in student effort that is explained by teacher confirmation.

#### *Gender and the Classroom*

The definition of gender, according to Canary and Dindia (1998), is “the psychological and social manifestations of what one believes to be male and/or female” (p. 4). Sex is defined as “the genetic, biological differences between boys and girls, men and women” (p. 4). Gender is the focus of this research because this study is extensively related to the social aspect rather than the biological aspect.

Gender differences in reference to teacher-student interactions have been examined by many researchers. Allen, O’Mara, and Long (1987) have found a connection between learning outcomes and student gender. Does the classroom setting set males up for success? Wood (2003) reports that perceptions of women as passive and underachieving and men as independent and achieving are influenced by the classroom setting. The educational setting itself provides an environment that reinforces behaviors that are generally displayed by males (Gabriel & Smithson, 1990; Krupnick, 1985; Spender, 1989). Allen, O’Mara, and Judd (1985) examined females in public speaking environments and claimed that they were extensively more apprehensive than males. Garrison and Garrison (1979) also agree that girls are more apprehensive than boys; moreover they recognize a stronger difference when the students are younger. As the girls reach their high school years, they appear to be less apprehensive. Interestingly, Schaller and Comadena (1988) propose that teachers’ perceptions of apprehension are that they believe boys struggle more with apprehension than girls. Although studies have supported the classroom setting as a factor that may favor the academic success of males and that teachers’ perceptions of apprehension are contrary to research findings, it is important to note that differences in genders do exist and these differences may affect learning outcomes. Aside from studies supporting the environmental advantages received by males in the classroom, researchers have also examined the affect of teachers’ actions on opposing student genders.

*How Teachers/Professors Respond Differently to Male and Female Students.* Frequently, teachers give more attention to male students than female students (Brophy, 1985; Sadker & Sadker, 1986; Smith, 1992). Lee (1980) found that teachers tend to interact more with males in the classroom because they tend to disrupt the class more. In an effort to keep the class focused, teachers often use examples and ideas that trigger the interest of the boys (Lee, 1980). Sadker and Sadker (1986) point out gender bias actions of teachers, such as calling on boys more than girls and providing more time to answer questions. Spender (1989) also recognized that teachers ask more challenging questions of boys and even elaborate on their answers more than they do for

girls. After recognizing the unintentional gender bias incidents by teachers, it is also important to note that research supports unintentional gender bias occurrences by the student (in reference to the teacher/professor's gender) as well.

*Students' Responses to Male and Female Teachers/Professors.* Hopf and Hatzichrisou (1999) and other researchers believe that the gender of the teacher may play a role in student outcomes (Omvig, 1989; Worrall & Tsarna, 1987). Nelson (1987) studied the perception of graduate students on climate of the classroom as it related to professor's behavior and gender. The students' gender and the differences in responses were also examined. She concluded that both male and female students reported a "higher degree of satisfaction" for female professors (rather than male professors). In another study, Meece (1987) surmised that the common element in male professors was the inclination to be more authoritative, and female teachers were generally more supportive. In concurrence with the previous studies, Statham, Richardson, and Cook (1991) demonstrated the tendency of female professors (more than males) to create an atmosphere that supports more cooperative learning and communication among other students. However, other studies have different findings.

According to Arbuckle and Williams (2003), college students generally rate female professors as less effective than male professors. Also important to examine is the interaction between the same gender student and professor. Basow (2000) concludes that male students rate male professors higher and female students rate female professors higher. The gender of the student and the gender of the teacher/professor may play a significant role in teacher-student interactions and learning outcomes, but the research is conflicting. This study will take a close look at the relationship between gender and perception of teacher confirmation and student effort.

*Gender and Effort.* According to Nicholls (1979), boys are more likely to believe their accomplishments are accredited to their ability level while their failures are attributed to a lack of effort. In contrast, girls deem their failures as a lack of ability (Nicholls, 1979). In another study, Reis (1987) concluded that girls often consider luck to be the rationale for their success. Supporting similar findings, Rimm (1991) found that girls often regard their success as a product of their effort. The difference in males and females in regard to attributing effort as a part of success is recognized in the attribution theory. Weiner (1974) and other researchers (Jones et al., 1972) created the theoretical framework that stemmed from Heider's (1958) research of the theory of attribution. Weiner (1980) indicates that students with higher levels of self-esteem attribute success to ability and failure to lack of effort. Considering males tend to deem success as ability and failure as a lack of effort, it would be safe to deduce (based on the attribution theory) that males have higher levels of self-esteem than females.

Research has clearly discovered that gender plays a significant role in the direction of the educational outcomes. Both the gender of the student and the teacher/professor can influence the learning process. It is important to recognize the differences and develop strategies that will produce successful results.

#### *Statement of Problem/Hypothesis*

In order to better serve students, it is important to determine if teacher confirmation has a significant positive relationship with student effort across gender groups. Therefore the following hypothesis was posited:

*H1: Students who rate their instructors higher for teacher confirmation are more likely to demonstrate higher scores of effort in that class.*

This hypothesis will be examined for the total population as well as for four subgroups (female students rating female professors, female students rating male professors, male students rating female professors, and male students rating male professors).

The second hypothesis examined professor gender and its relations to students perception of teacher confirmation. If a significant correlation exists between TC and SE, then the difference between student responses of TC for female professors and male professors should be consistent with Heckert et al.'s (2006) findings. Therefore, the second hypothesis was posited:

*H2: Students will score female instructors significantly higher for teacher confirmation than male instructors.*

The third hypothesis examined student gender and its relations to students perception of teacher confirmation. Heckert et al. (2006) also recognized another surprising result from the background characteristics. The findings indicated that female students were reporting higher levels of effort in their classes. If a significant correlation exists between TC and SE, then the difference in TC responses between male and female students should correspond with Heckert et al.'s findings. Therefore, the following hypothesis was posited:

*H3: Female students will score instructors significantly higher for teacher confirmation than male students.*

#### Method

A quantitative survey was distributed to students enrolled in general education classes (N= 672) at a northeastern public university. Students were asked to base their responses on the perceptions of the professor they had previously to the class they were currently attending. This sampling technique has been utilized by past research to assure professors from a wide variety of disciplines (e.g., Christophel, 1990; Myers & Rocca, 2000; Schrodt, 2003; Wanzer & McCroskey, 1998).

#### *Sample Demographics*

Female students made up 56.9% (n = 383) and male students made up 42.8% (n = 288). In terms of class year, 52.5% (n = 353) of the sample consisted of freshman, 24.8% (n = 167) sophomore, 14.7% (n = 99) juniors, and 7.3% (n= 49) seniors. The sample consisted of perceptions of 50.8% (n= 342) female professors and 48.1% (n= 324) male professors. Students self identified as 90.9% (n = 611) White/Caucasian, 2.1% (n= 14) Black/African American, 5% (n= 34), 1.4% (n = 10), and 1.9% (n = 13) Other. See other demographics and associated characteristics in Table 1.

Table 1  
*Demographics and Associated Characteristics of Students Participating in the Study*

Group	Number	Percent
<b>Professor's Age (N=669)</b>		
Under 35	135	20.1
36-44	226	33.6
45-55	190	28.2
Over 55	118	17.5
<b>Professor's Ethnicity (N=673)</b>		

#### 454 Teacher Confirmation

White/Caucasian	608	90.3
Black/African American	23	3.4
Hispanic/Latino	15	2.2
Asian	13	1.9
Other	14	2.0

#### Class Size ( $N = 670$ )

Under 10	15	2.20
10-19	140	20.8
20-29	227	57.0
30-39	109	16.2
40-49	68	10.1
50 or more	111	16.5

#### How challenging the class was for the student ( $N = 671$ )

Not at all	43	6.4
A little	127	18.9
Moderately	323	48.0
A lot	137	20.4
Extremely	41	6.1

Group	Number	Percent
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#### The student's interest in the subject ( $N = 669$ )

None	46	6.8
A little	156	23.3
Moderate	249	37.2
A lot	166	24.8
Extreme	52	7.8

#### Type of class ( $N = 672$ )

General Education Requirement	362	53.8
Class in the Student's Major	281	41.8
Free elective	53	7.9

#### General Level of Effort in All Classes ( $N = 672$ )

None	2	.3
A Little	20	3.0
Moderate	274	40.8

A Lot	315	46.9
Extreme	61	9.1
<b>Student's Grade Point Average (N = 668)</b>		
Below 1.5	2	.3
1.5-2.0	21	3.1
2.1-2.5	78	11.7
2.6-3.0	223	33.4
3.1-3.5	235	35.2
3.6-4.0	108	16.2
<b>Student's Response to a Question (N = 599)</b>		
Interesting	414	61.5
Other	185	27.5

### *Instruments*

The survey was comprised of two instruments: the Teacher Confirmation Scale and the Student Effort Scale.

*Teacher Confirmation Scale.* The Teacher Confirmation Scale (Ellis, 2000) was originally a 27-item Likert scale that measured the following four dimensions: (a) how teachers respond to questions, (b) teacher "interest in students and in their learning," (c) teaching style, and (d) absence of disconfirmation (intimidates students) (p. 377). However, factor analysis revealed that dropping the fourth dimension, "absence of disconfirmation," was necessary to improve the overall reliability. Ellis (2000) found an overall reliability of .93 for the 16 items. Likewise, this study utilize the three dimensions, responding to questions, demonstrating interest, and teaching style. Sample items from the instrument include, "Takes time to answer students' questions fully" and, "Makes an effort to get to know the students". Responses ranged from Strongly agree (5) to Strongly Disagree (1). From the 16 items in the three dimensions, one item was removed (communicates that he/she is interested in whether student are learning) from the demonstrated interest subcategory because of survey error. For the summed scale, this study obtained a Cronbach alpha of .93.

*Student Effort Scale.* In the second instrument, student effort was measured utilizing a 10-item Likert scale (Heckert et al., 2006). Sample items in the instrument in reference to the student's effort for a particular teacher/professor include: "I usually read assigned materials" and "I came to class prepared and ready to participate". Response categories ranged from Strongly agree (5) to Strongly disagree (1) Past research has shown an alpha reliability of .82 (Heckert et al., 2006). The obtained Cronbach alphas for this study was a .81.

### **Results**

Hypothesis 1 stated that there would be a significant and positive correlation between teacher confirmation and student effort. The Pearson correlation was significant, indicating that there was a moderate positive relationship between teacher confirmation and student effort ( $r = .37$ ,  $p < .01$ ,  $n = 621$ ). Therefore, 13.7% of student effort was accounted for by teacher confirmation.

Hypothesis 2 stated that female professors would have significantly higher scores on the teacher confirmation scale, when compared to male professors. An independent t-test found no significant difference between the means of male professors (mean = 3.8) and female professors (mean = 3.8) on teacher confirmation ( $t(635) = .28, p < .78$ ).

Hypothesis 3 stated that female students would score instructors significantly higher on the teacher confirmation scale than male students. An independent t-test found no significant difference between the means of female students (mean = 3.8) and male students (mean = 3.8) on teacher confirmation ( $t(640) = -.13, p < .89$ ). (See Table 2 for additional correlations for selected variables in the study; see Table 3 for additional means, standard deviations and t-tests.)

Table 2  
*Correlations Between Selected Variables in the Study*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. TC	-												
<b>2. Effort</b>	<b>.37**</b>	-											
3. Prof-age	-.12**	-.07	-										
4. Class-size	-.11**	-.18**	-.01	-									
5. Challenge	-.26**	-.02	.03	.13**	-								
6. Interest	.28**	.28**	-.03	-.05	-.14**	-							
7. GE-class	-.07	-.14**	-.03	.04	.08	-.37**	-						
8. Major-class	.02	.12**	.02	-.00	.00	.34**	-.72**	-					
9. Free-elective	-.01	-.01	.02	-.00	-.01*	.03	-.27**	-.18**	-				
10. Student age	.00	.13**	.11**	-.09*	-.00	.05	-.14**	.08*	.01	-			
11. Class-standing	.08*	.11**	.07	-.11**	.02	.08*	-.28**	.17**	.11**	.56**	-		
12. General effort	.03	.12**	.02	-.03	.12**	.06	-.05	.04	-.03	.14**	.10*	-	
13. G.P.A.	.04	.23**	.01	-.03	-.07	.12	-.03	.05	-.02	.04	.04	.38**	-

Note. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . **Boldface = hypothesis.**

Table 3  
*Means, Standard Deviations, and t-Tests for Teacher Confirmation and Student Effort by Gender of Professor and Teacher Confirmation, Student Effort, General Effort, and Grade Point Average by Student Gender*

Group	Males		Females		<i>t</i>	<i>Sig</i> (2-tailed)	Female N	Male N
	Mean	SD	Mean	SD				
Professors								
<b>Teacher Confirmation</b>	<b>3.75</b>	<b>.77</b>	<b>3.77</b>	<b>.70</b>	<b>.278</b>	<b>.781</b>	<b>325</b>	<b>312</b>
Student Effort	3.89	.58	3.86	.56	-.606	.545	331	312
Students								
<b>Teacher Confirmation</b>	<b>3.76</b>	<b>.64</b>	<b>3.75</b>	<b>.81</b>	<b>-.134</b>	<b>.893</b>	<b>372</b>	<b>243</b>
Student Effort	3.73	.56	3.99	.54	5.88	.00	368	280
General Effort	2.39	.69	2.79	.67	7.584	.00	383	288
GPA	4.12	1.02	4.75	.959	8.198	.00	380	287

Note. GPA = grade point average. **Boldface = hypothesis.**

*Step-wise Regression*

After accounting for missing data in the teacher confirmation scale and gender identification, a stepwise regression indicated that teacher confirmation explained significant variability in effort even when entered after all the other predictors (Table 4). The first analysis of covariance (ANCOVA) (step 1) represents beta values for quintiles of teacher confirmation predicting student effort. The results show a linear pattern whereby, using the highest quintile of TC as a reference, each successive quintile has a correspondingly lower mean level of student effort. The overall  $R^2$  was 16.5. Step 2 represents beta values for gender, student age, class size, general effort, and interest predicting student effort. Collectively, these variables accounted for over 28% of the variance in student effort. Finally, step 3 represents both step 1 and step 2 combined. The results show that, after controlling for student demographic characteristics and associated variables, TC still accounts for a statistically significant proportion of variance in student effort. Of the 37% of variance accounted for in the full model, approximately 9% is independently accounted for by TC. Also, a custom hypothesis test indicated that the relationship was linear across the quintiles of teacher confirmation.

Table 4

*ANCOVA via General Linear Model for Teacher Confirmation, Gender, Student Age, Class Size, General Effort, and Interest Predicting Effort*

Constructs	b (se)	sig	R <sup>2</sup>
<i>Effort by Teacher Confirmation (step 1)</i>			
Predictor of Total TC			
1st %ile	-.657 (.07)	.00	
2nd %ile	-.587 (.06)	.00	
3rd %ile	-.464 (.06)	.00	
4th %ile	-.280 (.07)	.00	
5th %ile	.00		.165
<i>Effort by Student Constructs (step 2)</i>			
Student Constructs			
Female	.115 (.04)	.00	
Male	.00		
Student Age	.009 (.01)	.21	
Class Size	-.062 (.01)	.00	
General Effort	-.306 (.03)	.00	
Interest	.135 (.02)	.00	.283
<i>Effort by Teacher Confirmation and Student Constructs (step 3)</i>			
Female	.096 (.04)	.01	
Male	.00		
Student Age	.010 (.01)	.16	
Class Size	-.050 (.01)	.00	
General Effort	-.292 (.03)	.00	
Interest	.088 (.02)	.00	
1st %ile	-.516 (.06)	.00	
2nd %ile	-.406 (.06)	.00	
3rd %ile	-.338 (.06)	.00	
4th %ile	-.194 (.06)	.00	
5th %ile	.00		.368

Note.  $p < .05$  (two-tailed)

Table 5  
*Mean and Standard Deviation Levels of Student Effort by Quintile of Perceived Teacher Confirmation*

Lowest Quintile		2 <sup>nd</sup> Lowest Quintile		Middle Quintile		2 <sup>nd</sup> Highest Quintile		Highest Quintile		Total Sample	
N = 128		N = 139		N = 136		N = 125		N = 124		N = 652	
Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
3.6	(.60)	3.7	(.54)	3.8	(.50)	4.0	(.50)	4.3	(.42)	3.9	(.57)

### Discussion

The purpose of this study was to explore relationships between student effort, teacher confirmation, and gender. A positive relationship was found between teacher confirmation and student effort. These results, along with other previously published research provide support for preparing teacher education students with the tools to effectively employ teacher confirmation skills, with the intent of influencing levels of student effort.

The second and third null hypotheses failed to be rejected, indicating that the concept of teacher confirmation was not different between females or males. The gender of the professor was not associated with perceived receipt of teacher confirmation; nor did the gender of the student appear to influence the nature in which teacher confirmation is interpreted. These results suggest that teacher confirmation can be taught to both male and female teacher preparation students without the influence of gender bias. But these findings are not consistent with findings of others; thus, further study is needed to clarify the role of gender with respect to TC.

Other interesting findings included no significant difference between the means of female professors and male professors on student effort, conflicting with Heckert et al.'s (2006) results, which indicated that "all students reported higher effort for female instructors than male instructors" (p. 590). However, in this study a significant difference was found between the means of female students and male students on student effort, supporting Heckert et al.'s results that "females reported higher effort (than males)" (p. 590). This study identified findings that females reported higher levels of general effort in all classes as well as higher levels of effort in the classes they were reporting on in the survey. Consequently, female students also reported higher grade point averages than male students. Intriguingly, findings from this study support the concept that gender played a role in general and overall student effort; nevertheless, these gender differences did not appear to affect the positive relationship between teacher confirmation and student effort.

Additional positive relationships related to student effort included: students who filled out the survey in reference to a professor from a course in their major (rather than a general education or free elective), student age, class standing (year of student), and the student's grade point average. The relationship between student effort and students who filled out the survey for a teacher whose class was in their major was consistent with the idea that students will put forth more effort if they are interested. Furthermore, the negative relationship between student effort and students in general education classes (rather than in their major or a free elective) also supports the consistent finding related to interest. Student age and class standing are possibly indicative of level of maturity. After a student has had time to express the freedom and independence that come with a college experience, they also may have had the opportunity to

learn from the consequences of procrastination and poor effort. Through maturity and experience as a college student, they would feasibly tend to increase their level of effort. Also, the students who are unable to increase their level of effort in later years would most likely drop out or be removed from the opportunity to learn at the institution. The relationship between student effort and grade point average supports the common sense belief that students who put forth more effort will perform at a higher level.

Other consistent findings were related to class size. The size of the class may impact the ability for a teacher to practice TC. In order to make students feel endorsed and recognized as valuable, it would be difficult, if not impossible, to do so in a lecture hall filled with over 100 students. This study supports the effective practice of smaller class size, identifying a negative relationship between class size and both student effort and teacher confirmation.

An additional finding included the negative relationship between teacher confirmation and age of the professor. This finding supports the proposal of other interesting research questions: Is TC a concept that may have an age bias? Is TC a skill that is only recognized in younger teachers? Is TC more difficult for older teachers?

A remarkable finding was the negative relationship found between how challenging the class was and both teacher confirmation and interest in the subject. The more interesting the class, the less challenging it was for the student. Also, the more a teacher practiced TC, the less challenging it was for the student. Is it possible that students are more comfortable in the class when the teacher has a high use of TC and the subject is interesting? The level of comfort the student feels in the class could easily be translated as less challenging to the student. Students appeared to perceive classes with professors that do not practice TC and are not interesting to be more challenging.

Intriguingly, however, a positive relationship was found between students' general level of effort (for every class) and the degree to which the class (the class they reported on) was challenging. In other words, students who normally have higher levels of general effort also found the class they reported on more challenging. It appears as though students, who are self-motivated and generally have high levels of effort in all their classes, tend to find their classes more challenging than students who do not generally have high levels of effort.

The most fascinating research question can be proposed in reference to the degree to which a teacher needs to be challenging to effectively increase student effort. Does the degree to which a class is challenging reflect the degree to which a student puts forth effort? Could it be possible that students who report higher levels of effort are simply more challenged students in general? Is a student's general level of effort a possible indicator of the degree in which a challenge is effectively impacting the student's performance?

Consistent with other findings, the results also indicated a positive relationship between the number of students in the class and the degree to which the class was challenging. This study supports the concept that the degree to which a professor demonstrates TC is similar to the degree to which students: find the class to be more interesting, find the class less challenging, and put forth more effort.

Another important finding to recognize is the relationship between student effort for the class they reported on and the student's general level of effort. Student effort was measured through the 10-item scale; however, general level of effort was measured by one question (In the past year, how would you rate your general level of effort IN ALL your classes?). After general effort was controlled for, teacher confirmation and effort still demonstrated a significant positive

relationship. This is an important factor because it supports the concept that the student effort for a specific professor was not simply the same as the student's general level of effort in all their classes. The professor may play a role in the difference.

#### *Limitations*

The first limitation of this study is that the data came from a rural north eastern public university with very little diversity. The population was comprised of over 90% White/Caucasian students and professors. The second limitation involves self-reporting. The study assumes that individuals are able to read, understand each question, and are responding truthfully on the survey. The third limitation focuses on the ability to relate the information to other studies on Teacher Confirmation using 16 items. This study only used 15 items to have an equal number of items in each subcategory; however, it was evident that this study represented comparable strengths in reliability. The final limitation is in respect to gender differences and student effort. Considering this study supports the perception that females rate themselves higher in levels of effort than males, it cannot be assumed that males actually put forth less effort. The possibility that a female's perception of "a lot" of effort may be equivalent to a male's perception of a "moderate" level of effort should be considered.

#### *Suggestions for Future Research*

To develop a better understanding of effective training skills that should be employed in teacher preparation programs, future research should focus on a longitudinal study to determine the time relationship between TC and SE. Also, how confirming behaviors are enacted begs for future research. Goodboy and Myers (2008) found that the somewhat confirming condition yielded more favorable outcomes than the confirming condition. They suggest that extended eye contact and or excessive smiling may be perceived as fake or phony by students. Therefore, as teacher preparation programs are being developed, the sincerity of the confirming behaviors must be considered. Also from a theoretical perspective, continuing to study ideas that support a direct pathway from TC to cognitive learning is suggested. Additional research on gender differences in relation to effort would also be recommended. Previous research suggests that all students report higher effort for female instructors than male instructors (Heckert, 2006); however, this study suggests no significant difference in how students reported effort with respect to the gender of the professor. More studies are needed to clarify these findings.

#### Conclusion

The purpose of this study was to examine the relationship between teacher confirmation and student effort. This study found a positive correlation. Students who rated their professors higher for teacher confirmation were more likely to demonstrate higher scores for effort in that class. The study was also concerned with the degree to which teacher confirmation may be a gender-biased concept. There was no relationship observed between professor gender and teacher confirmation scores. There was also no relationship observed between student gender and teacher confirmation. Additional interesting findings included a significant difference between male and female student effort. Female students scored higher on student effort than male students. Finding direct links between teacher confirmation and cognitive learning can help build stronger teacher preparation programs and better opportunities for students to learn.

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