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Transformational Leadership in the Classroom: The Development and Validation of the Student Intellectual Stimulation Scale

San Bolkan & Alan K. Goodboy

The purpose of this study was to develop and validate a measure of intellectual stimulation in the college classroom. Based on the notion of transformational leadership articulated by Bass (1985) and the operationalization of teacher behaviors reported by Bolkan and Goodboy (in press), we created a quantitative measure for which no alternative existed. Results suggest that the Student Intellectual Stimulation Scale (SISS) has a stable factor structure, high internal reliability, and convergent and concurrent validity. Findings are discussed in relation to students' expectations of class workloads, demanding courses, and the culture of "college lite."

Keywords: Instructional Communication; Intellectual Stimulation; Transformational Leadership

Professors foster a multitude of relationships with their students and perform duties ranging from advisors, to mentors, to instructors (Walumbwa, Wu, & Ojode, 2004). Although college teachers enact many roles in the classroom, of interest to this study is their position as leaders. Teacher leadership is an important concept and reflects the behaviors instructors use to facilitate the attainment of students' personal and group goals (Treslan, 2006). Several researchers support the notion that teachers function as leaders in their classrooms (e.g., Bolkan & Goodboy, 2009; Pounder, 2003, 2006, 2008) and suggest that leadership models developed in business settings

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are applicable to the study of teacher behavior (e.g., Baba & Ace, 1989; Chory & McCroskey, 1999). Chory and McCroskey (1999) stated that "applying organizational concepts to the classroom setting seems plausible when the classroom is considered an organization" (p. 2) which, the authors asserted, it should be. The authors reported that, considering "the classroom is an organization, the extension of concepts relating to organizations, but not yet tested in the classroom, is warranted" (p. 2). Other scholars agree (e.g., Pounder, 2006, 2008; Walumbwa et al., 2004) and have proposed that a fruitful direction for research may be the application of management principles to classroom settings where "instructors replace managers and participants or students replace subordinates in the leadership dyad" (Pounder, 2003, p. 9).

Although a variety of models may be used to examine leadership style (Zorn & Violanti, 1993), effective classroom leadership behaviors may be generally subsumed under the rubric of transformational leadership (Pounder, 2006). Transformational leadership is a combination of leadership qualities including charisma, individualized consideration, and intellectual stimulation (Bass, 1985). Transformational leaders motivate their followers through inspirational leadership (charisma), work with employees on an individual level to meet their developmental needs (individualized consideration), and stimulate employees to take new approaches and expend more effort when problem solving (intellectual stimulation) (Seltzer & Bass, 1990). Transformational leadership is unique compared to other leadership approaches insofar as it focuses on: aligning followers' self-interest with those of the group, elevating followers' concerns for achievement and self actualization, and fostering autonomy and challenging work (Bass, 1999).

In business settings, transformational leadership has had positive relationships with follower job satisfaction, satisfaction with the leader, follower motivation, perceived leader effectiveness (Judge & Piccolo, 2004), follower empowerment, job satisfaction, and affective commitment (Castro, Perinan, & Bueno, 2008). Recently, student perceptions of their instructors' transformational leadership qualities have been studied in university settings. These studies have reported positive relationships with transformational leadership and students' extra effort, perceived instructor effectiveness, student satisfaction (Pounder, 2008), and with students' trust in, and respect for, their instructors (Harvey, Royal, & Stout, 2003). Moreover, transformational leadership has been found to be positively associated with cognitive learning, affective learning, student motivation, student communication satisfaction, student participation, and perceived instructor credibility (Bolkan & Goodboy, 2009).

Unfortunately, confusion exists regarding what scale to use when measuring transformational leadership. Although most measures of transformational leadership are based on (or explicitly use) Bass's (1985) original Multifactor Leadership Questionnaire (MLQ), Heinitz, Liepmann, and Felfe (2005) reported that "a fully accepted structure of transformational leadership and its facets is still missing" from the literature (p. 182). Instead, "numerous versions with a varying number of items and factors exist" (Heinitz et al., 2005, p. 183). In a separate review, Tejeda, Scandura, and Pillai (2001) mentioned that although many studies have used the

MLQ as a basis to measure transformational leadership, ''some studies have developed new measures, employed modifications of the MLQ, or used various forms of the MLQ itself'' (p. 35). In essence, organizational researchers have not agreed upon a standard measure of the construct. The same is true for the literature concerning instructional leadership. Although most studies in college classrooms use some version of the MLQ, scholars have yet to agree upon a standard instrument to measure transformational leadership.

Even if scholars did come to an agreement regarding a standard method of measurement, other problems exist. After summarizing research examining various models of the MLQ, Hinkin and Tracey (1999) concluded that there are several concerns with the scales employed in the past including weak support for the proposed factor structure of the measure. From their research, Hinkin and Tracey asserted that although ''Bass and his colleagues have developed a good theory of transformational leadership . . . they have not designed a measure that assesses it very well'' (p. 112). More recent attempts at validating the factor structure of the MLQ have also reported a lack of model fit (e.g., Heinitz et al., 2005).

As argued above, a standard for measuring transformational leadership does not exist and the measures that do may not be psychometrically sound. An additional problem with the research on transformational leadership in the classroom is that the MLQ was not created with an educational context in mind. That is, despite the fact that measures for transformational leadership exist, a standard for evaluating transformational leadership in the classroom has yet to be established. This is problematic in light of Henitz et al.'s (2005) observation that leadership depends on context. Because of the issues mentioned above, it is necessary to operationalize precise items relating to transformational leadership in the classroom if scholars are to accurately assess its impact on college students.

Rationale

In an effort to remedy problems associated with the measure of transformational leadership and to study the concept as it relates to the classroom, Bolkan and Goodboy (in press) qualitatively examined students' perceptions of the behaviors college instructors employed that made them seem transformational. The authors derived operational definitions of charisma, individualized consideration, and intellectual stimulation from student-solicited narratives to reveal what instructors actually did to promote transformational leadership in the classroom. Participants in that study were 166 undergraduates who gave examples of what their teachers did to demonstrate one of the three dimensions of transformational leadership operationalized with reference to Bass's (1985) original conceptualization of the terms and his original measurement items.

Bolkan and Goodboy (in press) reported that students perceived that charisma was largely communicated by confirming students, being enthusiastic in class, using humor, and showing caring for students; individualized consideration was largely communicated by being available to students and providing idiosyncratic feedback; and

intellectual stimulation was largely communicated by using an interactive teaching style, challenging students, and encouraging independent thought. Although operational measures exist for the behavioral components of charisma and individualized consideration mentioned above (e.g., Charisma–Teacher Confirmation [Ellis, 2000], Nonverbal Immediacy [Richmond, McCroskey, & Johnson, 2003], Humor Orientation [Booth-Butterfield & Booth-Butterfield, 1991], Caring [Teven & McCroskey, 1997]; Individualized consideration–Teacher Accessibility [Waldeck, 2007]), the literature is currently without an operational measure of intellectual stimulation in the college classroom.

Intellectual stimulation is defined as the ability to stimulate thought and imagination, problem awareness, and problem solving and is considered to be a function of a person's technical expertise and intellectual power (as opposed to their interpersonal competencies) (Bass, 1985). On the face of it, the notion of intellectual stimulation seems particularly important in college environments insofar as teachers who are experts and who facilitate problem solving are also adept at promoting learning (e.g., Richmond, 1990). Because we know that transformational leadership positively influences students' outcomes in the classroom (e.g., Pounder, 2006), because students have articulated that specific behaviors promote intellectual stimulation in a college environment (Bolkan & Goodboy, in press), and because no measure of intellectual stimulation in a college environment exists, the current study was conducted to establish a quantitative measure of intellectual stimulation in the college classroom.

Study 1

Study 1 was designed to create a reliable measure of intellectual stimulation and provide preliminary evidence of validity. Our goals were to create a concise measure of intellectual stimulation as described by Bolkan and Goodboy (in press) and to demonstrate the measure's convergent validity through associations with Bass's (1985) scale. An additional goal of Study 1 was to validate the dimensionality of the new scale.

Method

Participants and procedure

Participants were 121 students (33 men, 87 women, one unreported, $M_{age} = 20.08$ years, age range: 18–33 years, $SD = 2.19$) recruited from several communication classes at a midsized Eastern university. In an effort to obtain a range of scores across a variety of instructors, students completed a survey in reference to the teacher they had in the class immediately prior to data collection (Plax, Kearney, McCroskey, & Richmond, 1986). Students who did not have a class the day of data collection referenced a class from the previous day or last class meeting.

Measurement

Our Student Intellectual Stimulation Scale (SISS) was built around the three core behaviors outlined in previous research (using an interactive teaching style, challenging

students, and encouraging independent thought) (Bolkan & Goodboy, in press). Based on student descriptions of instructor behaviors (Bolkan & Goodboy, in press), we created a set of 15 items corresponding to each of the notions of these three behaviors. After some discussion, we narrowed our pool to 10 items per component of intellectual stimulation based on assessments of face validity. All items are listed in Table 1. Participants completed a 30-item, 7-point Likert-type scale (1 = *never* and 7 = *always*). Alpha reliabilities for the total scale and subscales were: summed scale = .95 ($M = 38.68$, $SD = 9.79$); interactive teaching style = .91 ($M = 11.03$, $SD = 3.77$); challenging students = .92 ($M = 13.70$, $SD = 3.76$); encouraging independent thought .88 ($M = 13.98$, $SD = 3.31$).

The measure of transformational leadership was taken from Bass (1985): three items measured intellectual stimulation (''His/her ideas have forced me to rethink some of my own ideas which I have never questioned before,'' ''Enables me to think about old problems in new ways,'' and ''Has provided me with new ways of looking at things which used to be a puzzle to me''). Responses were solicited using a 5-point Likert-type format (0 = *not at all* and 4 = *frequently, if not always*). The alpha reliability was .89 ($M = 7.83$, $SD = 3.50$).

Results

Confirmatory factor analysis

We examined the predicted 3-factor structure of the 30-item SISS measure using confirmatory factor analysis with maximum likelihood estimation (ML) using LISREL 8.8 (Joreskog & Sorbom, 2007). To assess model fit we examined the model chi square, the NC, the CFI, the SRMR, and the RMSEA (as suggested by Kline, 2005). Values of the NC between two and five, values of the CFI above .90, and values of the SRMR less than .10 indicate reasonably good fit (Kline, 2005) whereas values of the RMSEA above .10 are indicative of poor fit (Diamantopoulos & Siguaw, 2007).

For our initial analysis we created a model with 3 latent variables predicted by their respective 10 observed variables. Results suggested that our model fit the data reasonably well. ($x^2 = 694.52$, $df = 402$, $p < .01$; $NC = 1.73$; $CFI = .96$; $SRMR = .07$; $RMSEA = .08$). All items loaded significantly on their respective factors except item eight from interactive teaching style, which was subsequently removed from consideration for the SISS short-form described below.

Short-form

We decided to create a short, 10-item version of our scale because we desired a measure with more brevity and wanted to avoid response fatigue for potential participants. To select our variables we examined items from our scale for high factor loadings (above .75), content and face validity, and redundancy with other items (see Table 1). Alpha reliabilities for the 10-item scale remained high (interactive teaching style = .91 [$M = 14.69$, $SD = 6.19$]; challenging students = .85 [$M = 13.63$, $SD = 4.58$]; encouraging independent thought = .82 [$M = 13.61$, $SD = 3.95$]). Moreover, items

Table 1 Items Measuring Intellectual Stimulation

Items	Factor Loadings		
	Study 1		Study 2
	30-item	10-item	10-item
My Teacher:			
(Interactive Teaching Style, ITS)			
1. Uses unique activities to get the class involved with the course material.	**.85**	**.87**	**.84**
2. Uses exciting teaching techniques in class.	**.86**	**.88**	**.88**
3. Has a boring teaching style. (RC)	.70		
4. Uses an innovative teaching style to get students excited about learning.	.77		
5. Presents course material in a novel way.	.63		
6. Plays games in class to help students learn.	.63		
7. Helps students get excited about learning through classroom activities.	**.84**	**.84**	**.86**
8. Uses the same sort of activities that any other teacher would use. (RC)	.10		
9. Has a superior teaching style compared to my other teachers.	.80		
10. Stimulates students to help us get involved in the learning process in a variety of ways.	**.86**	**.84**	**.87**
(Challenging Students, CS)			
1. Challenges me to be the best student I can be.	**.76**	**.79**	**.85**
2. Assigns demanding but worthwhile assignments.	.67		

3. Helps me see things we learn about in new perspectives.	.79		
4. Does not challenge me to see course content in new ways. (RC)	.46		
5. Challenges me to support my ideas in class with evidence and examples.	.60		
6. Encourages me to look into course concepts in a meaningful way.	.81		
7. Helps me come to conclusions about what I learn through discussion.	.78		
8. Makes me work hard to ensure that I really know the material well.	**.78**	**.80**	**.85**
9. Helps me realize that my hard work is worth it.	**.81**	**.84**	**.84**
10. Pushes me to produce quality work.	.78		
(Encouraging Independent Thought, EIT)			
1. Helps me think critically about course concepts.	.80		
2. Encourages independent thought from students.	.66		
3. Does not get me to think through problems in class. (RC)	.51		
4. Helps me think deeply about the concepts taught in class.	**.77**	**.82**	**.90**
5. Encourages me to come to my own conclusions about course material.	**.76**	**.80**	**.75**
6. Asks for personal examples from students in class when teaching concepts.	.54		
7. Wants me to think critically about what we are learning.	**.76**	**.83**	**.77**
8. Would appreciate a student who expresses his/her own opinion, even if it's not exactly right.	.52		
9. Does not help me think in an analytical way about what we learn. (RC)	.41		
10. Wants me to form my own conclusions about the course content.	.66		

Note. Items in bold were kept for the short form. RC = Reverse code. All parameters are standardized and significant at $p < .01$ (item 8 in Study 1, 30 items, is nonsignificant).

from the shorter scale were positively associated with the items on the longer version (interactive teaching style $r = .96$, $p < .01$; challenging students $r = .92$, $p < .01$; encouraging independent thought $r = .90$, $p < .01$). We conducted a confirmatory analysis to examine whether the new 10-item scale fit our original data. Results indicated that our model fit the data well ($x^2 = 46.08$, $df = 32$, $p = .05$; $NC = 1.41$; $CFI = .99$; $SRMR = .04$; $RMSEA = .06$) (See Figure 1). Because the results from our confirmatory factor analysis revealed a high correlation between challenging students and encouraging independent thought (see Table 2), we conducted a confirmatory factor analysis examining a two-factor structure by merging the two latent variables. Results ($x^2 = 70.78$, $df = 34$, $p < .01$; $NC = 2.08$; $CFI = .98$; $SRMR = .05$; $RMSEA = .10$) indicated that the three-factor solution was a better fit to the data ($x^2 = 24.70$, $df = 2$, $p < .01$). All subsequent results are reported using data from the 10-item scale.

Associations with Bass

To establish convergent validity we examined the link between our new measure of intellectual stimulation and Bass's original measure. All associations were significant ($N = 121$, $p < .01$) and in the predicted direction (total scale $r = .66$; interactive teaching style $r = .54$; challenging students $r = .61$; encouraging independent thought $r = .59$).

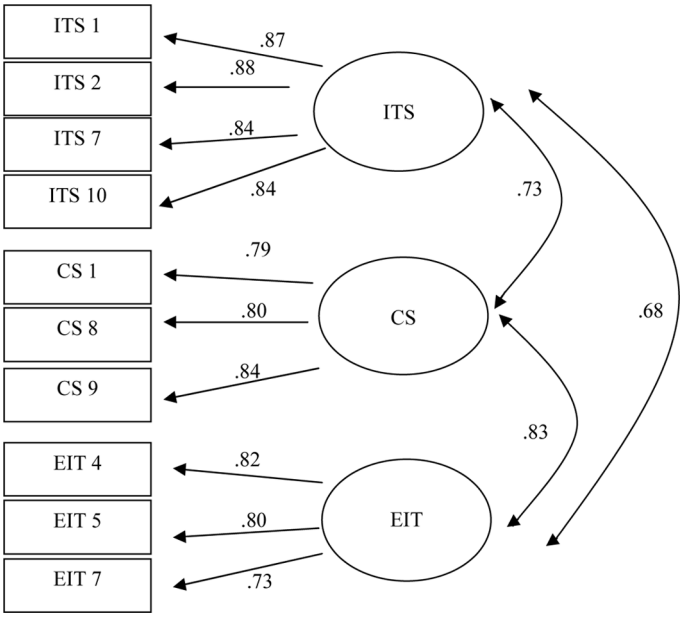

Figure 1 CFA of Intellectual Stimulation, Short Form. ITS = Interactive Teaching Style. CS = Challenging Students. EIT = Encouraging Independent Thought. All parameters are standardized and are significant at $p < .01$.

Study 2

Rationale

It is preferable to "validate a factor structure across different samples and to use the same method, either EFA or CFA, in both samples" (Kline, 2005, p. 205). Therefore, the first purpose of Study 2 was to validate our factor structure with another confirmatory factor analysis. Our second purpose was to establish concurrent validity by examining the relationship between our new measure of intellectual stimulation and multiple student learning outcomes.

Previous examinations of transformational leadership in business settings have reported that these behaviors influence subordinate motivation and satisfaction (e.g., Judge & Piccolo, 2004) and instructional scholars have reported that teachers who employ transformational behaviors can increase student learning, satisfaction, and motivation (e.g., Bolkan & Goodboy, 2009; Pounder, 2008). Therefore, we examined learning outcomes including cognitive learning (i.e., learning loss, learning indicators), affective learning (i.e., instructor affect, course affect), state motivation, and student communication satisfaction. Cognitive learning ranges from the simple retention of information to complex synthesis of material (Bloom, Hastings, & Madaus, 1971). Affective learning involves student feelings, emotions, and degrees of acceptance toward the subject matter (Krathwohl, Bloom, & Masia, 1964). State motivation to learn refers to student attempts to obtain academic knowledge or skills from classroom activities by finding these activities meaningful (Brophy, 1987). Finally, student communication satisfaction refers to an affective response resulting from the fulfillment of student concerns through conversations with an instructor (Goodboy, Martin, & Bolkan, 2009). These learning outcomes were chosen because, as Goodboy and Myers (2008) noted, these traditional learning outcomes "represent a variety of ways to examine student success" and "a number of positive instructor behaviors (e.g., immediacy) have been shown to influence these outcomes" (p. 160). Moreover, operationalizing learning in five ways enhances the concurrent validity of the study more so than measuring learning in a single operationalization. Because teachers who promote intellectual stimulation should promote student learning and motivation, the following hypothesis was proposed:

H1: *The SISS will be positively related to student reports of perceived cognitive learning, affective learning, state motivation, and student communication satisfaction.*

We also examined learner empowerment in tandem with our newly developed measure. Learner empowerment consists of three dimensions including meaningfulness, or students' perceived value of completing classroom tasks; competence, or students' evaluations of their own abilities and knowledge; and impact, which refers to students' beliefs that they make a difference in the classroom (Weber, Martin, & Cayanus, 2005). Because transformational leadership has been reported to increase subordinates' feelings of empowerment (e.g., Castro, Perinan, & Bueno, 2008) we predicted that:

H2: *The SISS will be positively related to student reports of learner empowerment.*

Method

Participants and procedure

Participants were 159 undergraduate students (50 men, 107 women, two unreported, $M_{age} = 21.01$ years, age range = 18–33 years, $SD = 2.44$) enrolled in one of numerous communication studies courses at the same midsized eastern university. Participants completed these measures in reference to the instructor and course they attended immediately prior to data collection.

Measurement

Participants completed a questionnaire consisting of the newly developed SISS from Study 1 along with the State Motivation Scale (Christophel, 1990), Revised Cognitive Learning Indicators Scale (Frymier & Houser, 1999), Cognitive Learning Loss Measure (Richmond, McCroskey, Kearney, & Plax, 1987), Revised Affective Learning Measure (Mottet & Richmond, 1998), Student Communication Satisfaction Scale (SCSS; Goodboy et al., 2009), and the 18-item Learner Empowerment Scale (LES; Weber et al., 2005) which is a shortened but psychometrically equivalent version of Frymier, Shulman, and Houser's (1996) original measure, in addition to demographic questions.

In Study 2, the 10-item SISS short-form was used. Alpha reliabilities for the total scale and subscales were as follows: total scale = .94 ($M = 40.99$, $SD = 14.06$); interactive teaching style = .92 ($M = 14.84$, $SD = 6.35$); challenging students = .88 ($M = 12.83$, $SD = 4.97$); encouraging independent thought = .85 ($M = 13.33$, $SD = 4.34$).

The State Motivation Scale consists of 12 items and asks participants to report on their levels of state motivation to learn. Responses were solicited using a 7-point semantic differential scale. Previous alpha reliabilities of .95 (Myers, 2002) and .91 (Goodboy et al., 2009) have been reported. In this study, the obtained Cronbach alpha was .94 ($M = 52.99$, $SD = 15.63$).

The Revised Cognitive Learning Indicators Scale contains seven items and asks participants to report on behaviors or activities associated with learning course content. Responses were solicited using a 5-point Likert-type scale (0 = *never* and 4 = *very often*). Previous alpha reliabilities of .85 (Frymier & Houser, 1999) and .91 (Bolkan & Goodboy, 2009) have been published. In this study, the obtained Cronbach alpha was .88 ($M = 18.62$, $SD = 6.14$).

The Cognitive Learning Loss Measure includes two items asking participants to report on how much they believe they learned in a class, along with how much they would have learned with an ideal instructor. Learning loss represents the discrepancy between the two scores. Reponses were solicited using a 10-point semantic differential format (0 = *learned nothing* and 9 = *learned more than in any other class*).

The Revised Affective Learning Measure contains 32 items and measures student affect for both a course and instructor. It utilizes a 7-point semantic differential response format. Previous alpha reliabilities of .98 (Myers, 2002) and .97 (Mottet & Richmond, 1998) have been reported. In this study, the obtained Cronbach alphas

were .97 ($M = 123.01$, $SD = 32.61$) for course affect and .97 ($M = 41.79$, $SD = 13.98$) for instructor affect.

The SCSS includes eight items and measures the degree to which students are satisfied with communication with an instructor. This scale uses a 7-point Likert-type response format (1 = *strongly disagree* and 7 = *strongly agree*). Previous alpha reliabilities of .96 and .98 (Goodboy et al., 2009) have been reported. In this study, the obtained Cronbach alpha was .95 ($M = 41.65$, $SD = 11.17$) for the summed scale.

The 18-item LES measures student interest across three dimensions: meaningfulness, competence, and impact. Responses were solicited using a 7-point Likert-type scale (1 = *completely disagree* and 7 = *completely agree*). Previous alpha reliabilities for these dimensions have ranged from .81 to .91 (Cayanus & Martin, 2008; Weber et al., 2005). In this study, obtained Cronbach alphas were .92 for meaningfulness ($M = 29.52$, $SD = 9.23$), .90 for competence ($M = 36.17$, $SD = 6.27$), and .82 for impact ($M = 25.34$, $SD = 7.64$).

Results

Confirmatory factor analysis

Results suggested that the data fit our proposed model ($x^2 = 73.22$, $df = 32$, $p = .05$; $NC = 2.29$; $CFI = .98$; $SRMR = .04$; $RMSEA = .09$). All paths were positive (ranging from .75 to .90) and significant at $p < .01$.

Table 2 Correlations between SISS and Learning Outcomes in Study 2

	ITS	CS	EIT
ITS	1.00	−0.77	−0.78
CS	0.69	1.00	−0.86
EIT	0.69	0.74	1.00
Student Learning Outcomes			
Cognitive Learning			
Learning Indicators	.53(.59)	.66(.75)	.63(.73)
Learning Loss	−.55	−.55	−.51
Affective Learning			
Course Affect	.53(.56)	.58(.63)	.69(.76)
Instructor Affect	.68(.72)	.64(.69)	.66(.73)
State Motivation	.65(.70)	.71(.78)	.67(.75)
Communication Satisfaction	.62(.66)	.65(.71)	.63(.70)
Learner Empowerment			
Impact	.55(.63)	.53(.62)	.53(.63)
Meaningfulness	.55(.60)	.62(.69)	.63(.71)
Competence	.31(.34)	.26(.29)	.30(.34)

Note. ITS = Interactive Teaching Style. CS = Challenging Students. EIT = Encouraging Independent Thought. All correlations are significant at the $p < .001$ level (two-tailed). Correlations in parentheses are corrected for attenuation.

Associations with student learning outcomes

Correlations between the three dimensions of SISS and the correlations between SISS and learning outcomes are presented in Table 2. Our results support hypotheses 1 and 2. Student motivation, cognitive learning, affective learning, and communication satisfaction were all positively and significantly associated with our measure of intellectual stimulation. Moreover, students' perceptions of learning loss were negatively associated with our measure of intellectual stimulation. Our measure was also positively related to students' perceptions of empowerment.

Discussion

Since Burns (1978) first conceptualized the notion of transformational leadership, scholars have been intrigued with the idea of motivating subordinates by elevating followers' concerns for achievement and self actualization (Bass, 1999). In fact, research on transformational leadership has been so prevalent that there have been more studies on it than on all other popular theories of leadership combined (Judge & Piccolo, 2004). Transformational leadership has been shown to be an effective management style in a variety of organizational settings, and although teachers have been considered leaders by scholars for some time, it was not until recently that researchers started to examine outcomes linked to transformational leadership in college classrooms.

While progress has been made concerning the application of transformational leadership in university settings, a major shortcoming in the literature is the lack of behavioral indicators of this teaching style (Bolkan & Goodboy, 2009). The current study focused on remedying this oversight by creating a quantitative measure of intellectual stimulation in the college classroom. Results suggest that the Student Intellectual Stimulation Scale has a stable factor structure, high internal reliability, convergent and concurrent validity. With the addition of the SISS, researchers wishing to measure transformational leadership in the classroom can now do so. In our opinion, a parsimonious set of measures including Teacher Confirmation and Nonverbal Immediacy (charisma), Teacher Accessibility (individualized consideration), and the SISS may function to effectively assess the behaviors college teachers employ to foster perceptions of transformational leadership.

The importance of intellectual stimulation in the classroom is made apparent when referenced together with the notion of college lite. According to several researchers (e.g., Mottet, Parker-Raley, Beebe, & Cunningham, 2007; Mottet, Parker-Raley, Cunningham, & Beebe, 2005), a major challenge facing college instructors today is how to maintain intellectual rigor in their classrooms. Although Mottet et al. (2007) found that if appropriate instructional communication behaviors were used by teachers students were willing to accept substantial course workloads, the authors ultimately argued that students have a relatively standard expectation that college professors should not challenge students with demanding course practices. While there may be some students who expect college to be "lite", our research suggests that students also appreciate being challenged to reach their potential. That is,

students pay significant fees to be educated and they may appreciate getting their money's worth from their educations. That said, the results of the current study suggest that students feel empowered by, and perceive that they learn more from, professors who get them excited and involved in the learning process, challenge them to be the best students they can be, show them that hard work is worth it, and help them think deeply and critically about course concepts—all ideas measured in our new scale of student intellectual stimulation.

One limitation of the current study is its scope. While we established convergent and concurrent validity of the scale, there is still room for research to determine its predictive validity in a classroom environment. Similarly, researchers should establish discriminant validity to ensure that similar measures of instructor communication behavior (e.g., relevance) are not isomorphic with the current measure. In addition, researchers should further validate the SISS's structure in a variety of samples.

The study of transformational leadership in the college classroom is in its infancy, and the possibilities for future research are many. This is true for the idea in general and for the notion of intellectual stimulation specifically. Future researchers may want to focus on intellectual stimulation specifically to determine how an interactive teaching style, challenging students, and encouraging independent thought influence students' experiences in the classroom.

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