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How Instructors Engage Students in Online Courses: A Correlational Study From the Perspective of Transformational Leadership

YIN Jiabing[a],*, YIN Jianjun[b]

[a]School of Foreign Languages, Taizhou University, Taizhou, China.
[b]College of Education and Human Development, Jackson State University, Jackson, Mississippi, USA.
*Corresponding author.

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Abstract

Universally accepted as a long-term critical strategy in higher educational institutions (HEIs) over the past two decades, online courses have recently witnessed a tremendous surge since the outbreak of the global COVID-19 pandemic. There is a growing concern among educational stakeholders regarding how to effectively engage students in online courses. Though research efforts have proved significant positive correlations between online instructor transformational leadership (TL) and student satisfaction/learning outcomes, empirical investigations in relation to the correlation between instructor TL and student engagement in college online courses are rare. This paper conducted a quantitative correlational study using two previously well-established survey questionnaires, Multifactor Leadership Questionnaire (5X-Short) and Online Community and Engagement Scale, to assess students' perceptions of online instructor TL behaviors and SE. Spearman's rank correlation analysis demonstrated that there exist significant positive linear correlations between the concerned variables, and multiple linear regression analysis identified two specific TL factors, Idealized Influence (Attribute) and Intellectual Stimulation, as significant predictors of student engagement in online courses. This paper concludes with the implication that HEIs should encourage the training of online instructors as transformational leaders in instructor professional development session. Limitations and corresponding recommendations for future research are also proposed at the end.

Key words: Instructor transformational leadership; Student engagement; Higher education; Online courses

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INTRODUCTION

Due to the growing popularity of the Internet and the application of information and communications technology, online courses, also known as e-learning, virtual education, distance education, etc., first emerged in the 1990s as a popular alternative to traditional face-to-face (f2f) classroom instruction (Deming, Goldin, & Yuchtman, 2015). For the inherent technological advantage as a cost-effective mode of instruction delivery without time and geographical restrictions, online courses have exhibited a steady increase since its inception and most HEIs have claimed that online education is critical for their long-term strategies (Allen & Seaman, 2015).

Admittedly, teaching and learning in online courses differs considerably from that in the traditional physical f2f classrooms. In brick-and-mortar settings, there has long existed a sophisticated mechanism that helps classroom instructors effectively involve and engage students to accomplish their learning objectives. Instructor leadership has been proved to exert an enormous influence through effective interaction strategies upon student learning behaviors and learning outcomes (Bush, 2014; Hulpia, Devos, & Rosseel, 2009; Leithwood & Jantzi, 2006). However, instructors face unprecedented challenges and barriers while teaching and communicating with students in online courses. There has been growing concern about student learning outcomes in online courses

partly because of the lack of instructor physical presence and hence effective influence (Balwant, 2016; Bogler, Capsi, & Roccas, 2013; Chang & Lee, 2013; Jameson, 2013). Instructors, as well as administrators, are hesitating about the online delivery of instruction and many first-year college students exhibit reduced interest in and would rather stay clear of online courses while registering for a new semester. In traditional f2f classrooms, instructor transformational leadership (TL) has received considerable research attention and been proved to be one of the most effective leadership styles in engaging students to achieve the desired learning outcomes (Balwant, 2016; Bolkan & Goodboy, 2009; Harrison, 2011; Leithwood & Jantzi, 2006). This study sought to examine the influential mechanism of online instructors upon students through TL processes to overcome the organizational barriers, provide support, enhance student engagement, and eventually result in higher levels of student satisfaction and better learning outcomes.

1. BACKGROUND OF THE STUDY

This study is based on TL theory and social constructivism theory to get a better understanding of how instructor TL factors affect student engagement in college and university online courses. TL was originally developed by Burns (1978) as "a process whereby a person engages with others and creates a connection that raises the level of motivation and morality in both the leader and the follower" (Northouse, 2016, p. 162). House (1976) added his contribution to TL theory by elaborating on the leader's personality characteristics, leadership behaviors, and its effects on followers. Bass (1985) explored the internal mechanism of TL theory and identified four factors (also known as the transformational 4 I's: idealized influence/charisma, inspirational motivation, intellectual stimulation, and individualized consideration). TL places special emphasis on intrinsic motivation and follower development, thus becoming the focus of leadership research since the 1980s (Northouse, 2016).

Previous studies have indicated that classroom instruction shares similarities with the working mechanism of an organization, which justifies the applicability of leadership theories in educational settings. Balwant (2016) regards a course/classroom as a quasi-organization in which instructors act as leaders with students as followers. He further defines instructor-leadership as "a process whereby instructors exert intentional influence over students to guide, structure, and facilitate activities and relationships" (Balwant, 2016). However, online instruction is by no means identical to traditional f2f instruction especially in regard of instructor physical presence and instructor-student interaction. The online courses share the fundamental components of social organizations in their operation including participants (instructors as leaders coupled with students as followers), rules and regulations, shared vision, necessary technology, and operating system.

Aside from best practices in online course instruction, many studies have revolved around the influence of instructor TL on student learning outcomes in online courses. Harrison (2011) conducted a correlational study of online instructor TL behaviors (i.e., charisma, intellectual stimulation, inspirational motivation, and individualized consideration) and student learning outcomes. He found that transformational instructors have a positive influence on student knowledge gains in online courses based on their reported higher cognitive outcomes. Other studies focus on the impact of instructor TL on student satisfaction. Judge and Piccolo (2004) replicated their study of the relationship between TL and job satisfaction in working settings into the context of online education and found similar results. Bogler et al. (2013) found that the more online instructors are attributed to TL style, the more satisfied the students will be.

The success of online courses is closely tied to whether instructors, with sufficient support from administrators, can effectively engage students to produce desired learning outcomes. Though lots of research efforts have been invested in examining student engagement in traditional f2f learning context, literature in relation to the correlation between instructor TL and student engagement in the online context is still lacking. Henrie, Halverson, and Graham (2015) conducted a review indicating that various ways have been employed to measure student engagement in online learning environments, ranging from self-reported surveys and interviews to assessment scores and behavior counts. Some studies investigated three predicators: positive teacher-student relationships, equitable teacher-student roles, and a sense of community in the classroom (Kirk, Lewis, Brown, Karibo, & Park, 2016). Based on the previous studies, this study intends to take the research a step further by examining the correlation between instructor TL and student engagement and to what extent instructor TL can predict student engagement in online courses.

2. RESEARCH METHODOLOGY

The purpose of this study is to assess instructor TL components and student engagement in online courses. The research effort is organized and described in detail in this session, including target population, sample selection, instrumentations, as well as data collection and analysis procedures. Also discussed are the expected findings and the ethical considerations.

2.1 Research Questions

Two research questions are developed for this study:

What is the relationship between online instructor TL factors and Student Engagement in college online courses?

To what extent can online instructor TL factors predict Student Engagement in college online courses?

2.2 Target Population and Sample Selection

A quantitative approach was employed in this study to examine students' perception of online instructor TL and student engagement in online courses. The students at a public university in an eastern province of China represent the intended population in this study. The criterion for the convenience sampling is that they are students who have completed at least one hybrid or fully online course offered in the selected university. The sample includes undergraduate students who have learning experiences in at least one online course. All the participants were invited to take part in the survey during the summer session of 2022. A prior statistical power is determined using G Power 3.1.9.4 with alpha set at .05 and effect size .15. G*Power suggests that 74 subjects (N = 74) are needed for this research design.

2.3 Instrumentation

This study adopted quantitative instrumentation using a combination of two survey instruments to obtain student perceptions of instructor TL and student engagement in online course settings. Data regarding online instructor TL were garnered via the Multifactor Leadership Questionnaire (MLQ 5X-short). Online Community and Engagement Scale (OCES) was adopted to gather data in relation to perceptions of student engagement in online courses. Included in the instruments are also the demographic categories: gender, age range, ethnicity, educational level, number of hybrid and online courses taken, course grade or student's expected learning outcomes.

2.3.1 Multifactor Leadership Questionnaire

The Multifactor Leadership Questionnaire (MLQ 5X-short) is the standard instrument and the most extensively adopted tool in the measure of a range of transformational, transactional, and non-leadership scales (Avolio & Bass, 2004). MLQ 5X-short is a 45-item questionnaire with a 5-point Likert scale ranging from "not at all", "once in a while", "sometimes", "fairly often" to "frequently, if not always". In detail, a set of subscales (five transformational, three transactional, one laissez-faire, and three outcome sub-scales) are included in MLQ 5X-short. For the purpose of this study, only 20 out of the first 36 items were retained to assess the five categories of TL, namely, idealized influence (Attributed), idealized influence (Behavior), inspirational motivation, intellectual stimulation, and individualized consideration. The wording of these items was modified slightly to better suit the online course setting. For example, "my online instructor" was used to replace "I". "My online instructor" was used to avoid possible confusion in participants. Granted permission for the wording alteration was obtained from Mind Garden, Inc., the copyright holder of the MLQ 5X-short.

2.3.2 Online Community and Engagement Scale

Research efforts have been invested in designing student engagement instruments for online courses, including a modified version of National Survey of Student Engagement (Robinson & Hullinger, 2008), the Online Student Engagement Scale (Dixson, 2010), and the Online Community and Engagement Scale (Young & Bruce, 2011). The Online Community and Engagement Scale (OCES) is a survey with 23 items designed to measure community and engagement in online courses. Young and Bruce (2011) developed the current 23 items from scales that are originally used to assess community and engagement in traditional f2f courses. Factor analysis categorized the 23 items into three factors: classroom community with instructors (8 items), classroom community with classmates (8 items), and engagement in learning (7 items) (as listed in Table 1) (Young & Bruce, 2011). These three factors correspond respectively with the three types of online interactions: student-instructor interaction, student-student interaction, and student-content interaction. Each item is expressed in a statement to which the participating student responds on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree".

2.4 Reliability and Validity

Reliability implies how consistent the research results are when the same instrument is adopted for research under similar conditions. For the purpose of this study, two previously established Likert-scale self-report survey instruments were adopted with granted permission. These two instruments are the Multifactor Leadership Questionnaire (MLQ 5X-Short) for instructor TL dimensions and the Online Community and Engagement Scale for student engagement dimensions.

MLQ 5X-Short is a well-established instrument in the measure of TL. An increasing number of scholars and researchers have extensively employed this survey instrument in their theses and dissertations, academic journal papers, and research projects, and verified its internal consistency, reliability, and validity. Avolio and Bass's MLQ manual exhibited strong evidence for its reliability and validity. Reliability estimates measured by Avolio and Bass (2004) using alpha coefficient ranged from .64 to .92. Similarly, a reliability analysis conducted by Scheper, Wetzels, and Ruyter (2005) resulted in reliability estimates all above .70. Additionally, confirmatory factor analyses were conducted and confirmed the construct validity of MLQ (5X-Short) (Antonakis, Avolio, & Sivasubramaniam, 2003; Avolio & Bass, 2004).

The Online Community and Engagement Scale was adapted from previously well-established instruments designed for traditional f2f classrooms. Young and Bruce (2011) used this survey in two pilot studies. As mentioned above, all the 23 items were grouped into 3 factors,

each with an internal reliability of .87, .91, and .81. Construct validity was demonstrated from the correlation between the factors and between the factors and certain demographic items.

2.5 Data Collection Procedure

The researcher created a Wenjuanxin (WJX) account to collect data from online courses. The researcher used this online platform to develop and distribute two survey instruments mentioned earlier. The researcher contacted faculty and staff in the selected university to invite students to participate in the survey. The instruments are in the format of Likert scale questionnaires. The participants were informed to make sure they were fully informed of and understood the nature of this study. The entire procedure took 25 to 30 minutes. The survey was conducted in the Spring Semester 2022. The data were collected from the survey respondents and then entered into SPSS for further analysis.

2.6 Data Analysis Procedure

The primary data-analytic software adopted is IBM Statistical Package for Social Sciences (SPSS) 22 for Windows. After data screening, descriptive analysis, correlation analysis, and multiple linear regression analysis were performed to address the guiding research questions. Essential characteristics of the data are presented through descriptive statistics, including participants' demographic information, students' perception of online instructor TL behaviors, online community with classmates, online community with instructors, and students' perception of engagement in learning.

Correlation analyses were then performed to examine the relationship between the four variables of online instructor TL (independent variables) and the three variables of student engagement in online courses (dependent variables). Correlation analyses were also performed to test whether the correlation is statistically significant. A p value of 0.05 were set to determine whether there is a statistical significance between the independent variables and dependent variables.

Multiple linear regression analyses were conducted to examine to what extent online instructor TL behaviors can predict the three dimensions of student engagement in online courses, and to examine what variable of online instructor TL (idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration) contributes significantly to student engagement in online courses.

3. FINDINGS AND DISCUSSION

Two 5-point Likert-scale survey instruments were adopted to assess the corresponding variables: MLQ (5X-short) and OCES. The independent variables in this quantitative study were online instructor TL factors, respectively Idealized Influence (Attribute), Idealized Influence (Behavior), Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration, while the dependent variables were the factors of online student engagement, including Community Building with Instructors, Community Building with Classmates, and Engagement with Learning, which correspond respectively with the three types of online course interactions, i.e., student-instructor interaction, student-student interaction, and student-content interaction (Moore, 1993).

To provide robust and plausible answers to the research questions, the researcher

performed descriptive analysis, correlation analysis (Spearman's *rho*), and multiple linear regression analysis of the collected data from participants in the selected university. This section begins with a statistical description of the general status of the sampled population as well as the variables of the survey instruments. This section also includes a detailed presentation of the findings yielded from the correlation analysis and the multiple linear regression analysis in relation to the variables of the online instructor TL and student engagement in online courses.

3.1 Data Screening and Cleaning

Using WJX platform, the researcher developed the survey instruments and distributed them electronically to the potential participants at the selected university. The participants were provided with a brief description of the nature of the study, including the goals, benefits, and advantages of the ongoing research. An anonymous link to the online survey questionnaires as well as the QR code was provided. Participating students could take the survey either on a computer or on any mobile device. At the end of the data collection phase, the collected data were downloaded from WJX panel service. The initial sample size was 121 participants after a 2-week period of data collection. Before the phase of data analysis, data screening was processed to examine whether there existed significant amounts of missing data (greater than 50% of the survey items unanswered). This process indicated that 3 participants missed significant amounts of data. That is, 118 online surveys are valid among a total of 121 collected sets of surveys. Therefore, data analysis procedure used the sample of 118 participants. Among the 118 valid participants, 36 are male, accounting for 30.5% of the sampled population, and 82 are female, accounting for 69.5% of the total sample.

3.2 Descriptive Statistics of the Survey Instruments

Online instructor TL variables were measured using the MLQ (5X-short) (Avolio & Bass, 2004). For the purpose of this study, only 20 items out of the original 45 were adopted to garner students' perceptions of online instructor TL factors, including Idealized Influence (Attribute), Idealized Influence (Behavior), Inspirational Motivation,

Intellectual Stimulation, and Individualized Consideration, each with four items designed for their measurement (see Table 1). A 5-point Likert-scale continuum was used to represent the 20 items (1 = not at all; 2 = once in a while; 3 = sometimes; 4 = fairly often; 5 = frequently, if not always). Higher scores on the continuum represent higher instructor TL.

Table 1
MLQ (5X-short) Factors and Corresponding Items

Factors	Items
Idealized Influence (Attribute)	5, 9, 11, 13
Idealized Influence (Behavior)	2, 7, 12, 19
Inspirational Motivation	4, 6, 14, 20
Intellectual Stimulation	1, 3, 16, 18
Individualized Consideration	8, 10, 15, 17

Student engagement in online courses was measured using the OCES developed by Young and Bruce (2011). Factor analysis grouped all the 23 items into three factors, respectively, Community Building with Instructors (8 items), Community Building with Classmates (8 items) and Engagement with Learning (7 items) (see Table 2). OCES also adopted a 5-point Likert scale continuum representing respectively strongly disagree, disagree, neutral, agree, and strongly agree.

Table 2
OCES Factors and Corresponding Items

Factors	Items
Community building with instructors	2, 3, 5, 8, 9, 10, 14, 23
Community building with classmates	1, 4, 17, 18, 19, 20, 21, 22
Engagement with learning	6, 7, 11, 12, 13, 15, 16

Cronbach's Alpha was calculated using SPSS to determine the mean reliability, or the internal consistency, of the survey questionnaires. Cronbach's Alpha > 0.7 is generally considered good for ability test and the like. When items are less than 10, an Alpha value > 0.5 is considered good. In this study, good reliability was found for online instructor TL ($\alpha = 0.933$, $N = 20$). Good reliability was also found for each variable of the online instructor TL, respectively Idealized Influence (Attribute) ($\alpha = 0.915$), Idealized Influence (Behavior) ($\alpha = 0.911$), Inspirational Motivation ($\alpha = 0.914$), Intellectual Stimulation ($\alpha = 0.927$), and Individualized Consideration ($\alpha = 0.920$).

Cronbach's Alpha was also calculated to determine the internal consistency between the items of the OCES scale. The overall reliability was found to be good with an Alpha value of 0.741 ($N = 23$). Good reliability was also found for all the three variables of student engagement in online courses, i.e., Community Building with Instructors ($\alpha = 0.658$, $N = 8 < 10$), Community Building with Classmates ($\alpha = 0.668$, $N = 8 < 10$), and Engagement with Learning ($\alpha = 0.647$, $N = 7 < 10$). The overall reliability test on all the 43 items of these two survey questionnaires reached an Alpha value of 0.914. The results of the reliability test indicate that the data collected from MLQ (5X-short) and OCES are valid and reliable.

3.3 Statistical description of online instructor TL factors and student engagement

Two kinds of descriptive statistics, namely mean (M) and standard deviation (SD), were calculated to provide an initial description of how the participants perceive their online instructors' TL behaviors and student engagement in online courses. The arithmetic mean describes the central tendency of the statistical distribution, while standard deviation measures the variability of the statistical distribution. The mean is the average value of participants' perception, or, the sum of all values divided by the total number. The SD is reflective of the degree of variability. The higher the SD, the greater the variance of the perceptions among the participants. The SD is close to zero when the data points are close to the mean.

The descriptive statistics of the Mean values of online instructor TL variables indicate that the participating students have the highest perception of online instructors' Inspirational Motivation (M = 3.87) with the mean of one item over 4.00 (Item 6 = 4.08) and one item over 3.90 (Item 20 = 3.96). Next comes the perception of the online instructors' Idealized Influence (Attribute) (M = 3.74) with one item's mean value over 4.00 (Item 13 = 4.06) and one item's mean over 3.90 (Item 11 = 3.95), followed by Intellectual Stimulation (M = 3.61), and Idealized Influence (Behavior) (M = 3.55), while Individualized Consideration has the lowest mean value (M = 3.46) with all the items averaged below 3.80. As far as specific items are concerned, the majority (14 out of 20) of the items have mean values over 3.50. Item 6 has the highest Mean value (4.08), indicating that online instructors are perceived to talk enthusiastically about what needs to be accomplished to make the online course a success, while Item 2 scores the lowest Mean value (2.97), indicating that instructors seldom talk about his/her important values and beliefs in the implementation of online course instruction.

In terms of SD, Intellectual Stimulation (SD = 0.732) has the least variance, while Idealized Influence (Attribute) (SD = 0.888) has the most variance with all 4 items over 1.00. 15 out of all 20 items have SDs between 1.000 and 1.300. Item 2 has the largest SD value of 1.317, indicating that respondents have the most varied perceptions of online instructors' advocating his/her values in teaching. Next come Item 8 (SD = 1.247) and Item 15 (SD = 1.214), suggesting that the perceptions are more varied on online instructors' commitment to teaching out of office time and the instructors' consideration of students' individual needs. These two items are the components of Individualized Consideration. The high SD values indicate that online instructors are perceived to perform differently in giving specialized attention to individual student's needs and lending support. Two items have SD values below 0.900,

Item 11 (SD = 0.855) and Item 13 (SD = 0.899), indicating that participants have relatively converging perceptions concerning online instructors' building students' respect and displaying power and confidence.

The findings above might indicate that the participating university students perceive their online instructors to be demonstrating more Inspirational Motivation behaviors and less Individualized consideration behaviors, which might be explained by the temporary and distant qualities of online courses. With the mean value of all the items at 3.65 (somewhere between "sometimes" and "fairly often"), it can be concluded that students in general have a slightly positive perception of their online instructor TL.

In summation, the descriptive statistics of MLQ (5X-short) reveal a positive trend of online instructors displaying relatively good TL qualities in the implementation of online instruction. They do comparatively well in displaying Inspirational Motivation and Idealized Influence (Attribute) instructional behaviors. However, they are expected to give specialized attention to students' needs, support and encourage them to perform better in online courses.

The descriptive statistics provide a self-reported picture of how participating students perceive the three variables of student engagement in online courses, respectively Community Building with Instructors, Community Building with Classmates, and Engagement with Learning. It is evident that participants have more favorable perceptions of student engagement in online courses (M = 4.30) than of online instructor TL behaviors (M = 3.58). All three variables of student engagement in online courses have mean values over 4.0. Engagement with Learning was the most highly rated variable (M = 4.52), followed by Community Building with Instructors (M = 4.32) with Item 23 excluded which is intentionally negatively stated and Community Building with Classmates (M = 4.07). All the items in Engagement with Learning and Community Building with Instructors have mean values over 4.0 with the only exception of Item 23 (M = 2.19). Only two out of eight items in Community Building with Classmates are rated less favorably with mean values below 4.0 (Item 18 = 3.83, Item 21 = 3.55). Item 18 is designed to assess students' personal connection with classmates, and Item 21 is designed to assess students' sharing personal concerns with classmates. When it comes to the specific items, the majority (15 out of the total 23 items) are rated between 4.1 and 4.5. Three items are rated over 4.6. Item 15 scores the highest Mean value of 4.70, indicating that students perceive themselves as performing well and earning a good grade in the online course of interest. However, without considering the intentionally negatively stated Item 23, Item 21 scores the lowest Mean value at 3.55, indicating that students either do not have a strong will to share personal concerns with classmates or the virtual circumstances of the online course does not facilitate the student-student interaction out of class.

The SD values of OCES indicate that students have more coherent perceptions of student engagement in online courses than those of online instructor TL behaviors since the variables of student engagement have smaller SD values. Among the three variables of student engagement, Engagement with Learning has the least variance (SD = 0.402), followed by Community Building with Instructors (SD = 0.459). Community Building with Classmates has the greatest variance (SD = 0.580). A general trend can be detected that participating students might have convergent perceptions concerning Engagement with Learning and Community Building with Instructors, while students' perceptions concerning Community Building with Classmates tend to be more varied. Overall, the SD values of these variables suggest that students' perceptions concerning student engagement in online courses are relatively stable with a little bit more variance on Community Building with Classmates. When it comes to the specific items, the majority (20 out of 23) of the items have their SD values between 0.5 and 1.0. Item 23 has the highest SD value (1.149), suggesting that students' perceptions as to whether they feel isolated in online courses varies the most. Item 15 has the lowest SD value (0.495), indicating that students have confidence in earning a good grade in the perceived online course.

In summary, the participants perceive themselves to be well engaged in online courses in relation to Engagement with Learning. They show relatively less will or less confidence in engagement with their peer classmates and their online instructors, which might be partially explained by the lack of opportunities to interact directly with their instructors and classmates in online courses because of the distant and temporary qualities of the virtual environment.

3.4 Correlation between Online Instructor TL and Student Engagement

Test of normality (the Kolmogorov-Smirnov test and Shapiro-Wilk test) was then conducted for the independent and dependent variables to decide what analysis method to be used to determine the correlation between independent and dependent variables. The results reveal that all values of the variables are significant ($p < 0.05$), indicating that the distribution of the variable data is significantly different from normality, i.e., the data on the variables are not normally distributed. Therefore, it could be more appropriate to use Spearman's rank correlation method (also known as Spearman's rho coefficients) in this correlation analysis to determine the correlation between the variables of online instructor TL and student engagement in online courses.

3.4.1 Correlations between online instructor TL factors and the variables of Student Engagement in online courses

The first research question addresses the correlation between online instructor TL (independent variable) and student engagement in online courses (dependent variable).

Due to the qualities of non-normal distribution and non-parameter (the rank order of values), the Spearman rank correlation method was performed to examine the relationship between the independent variables and dependent variables of interest.

Simple scatterplots were created before computing the bivariate correlations to check whether the relationship between independent variables and dependent variables is linear or not. The scatterplots demonstrate some general trend in the data between Idealized Influence (Attribute) and the three variables of student engagement in online courses. There seems to exist a positive linear relationship between Idealized Influence (Attribute) and the three variables of student engagement in online courses, as shown by the fit lines in the Scatterplots. That is, higher perceptions of online instructors' Idealized Influence (Attribute) are associated with relatively higher values of student engagement. A similar linear pattern can also be identified in the relationship between Idealized Influence (Behavior) and the variables of student engagement in online courses, as revealed by the fit lines: the higher the values of online instructors' Idealized Influence (Behavior), the higher the values of student engagement.

The results of Spearman's correlation analysis show that Idealized Influence (Attribute) is positively related to the three variables of student engagement in online courses, respectively Community Building with Instructors ($\rho = 0.508$), Community Building with Classmates ($\rho = 0.604$), and Engagement with Learning ($\rho = 0.468$). The significance value is less than .05 ($p = 0.00 < 0.05$), indicating that the positive correlations between Idealized Influence (Attribute) and the variables of student engagement in online courses are significant. Therefore, it can be concluded that there exists a significant positive linear relationship between Idealized Influence (Attribute) and the variables of Student Engagement in online courses. The same happens to the relationship between Idealized Influence (Behavior) and the variables of Student Engagement in online courses. The Spearman's rho correlation coefficients are respectively 0.404, 0.555, and 0.406, indicating that Idealized Influence (Behavior) is positively correlated with Community Building with Instructors, Community Building with Classmates, and Engagement with Learning. All the significance values ($p = 0.00 < 0.05$) reveal that the positive correlations are significant. Therefore, Idealized Influence (Behavior) is significantly positively correlated with the variables of Student Engagement in online courses.

The same procedure was conducted to determine the correlation between other online instructor TL factors and the variables of Student Engagement in online courses. It was revealed that the higher the mean values of Inspirational Motivation, the higher the mean values of student engagement, and Inspirational Motivation is significantly positively correlated with the three variables of Student Engagement. Also, a significantly positive linear correlation was proved to exist between Intellectual Stimulation / Individualized Consideration and the variables of Student Engagement in online courses. Therefore, it can be concluded that Individualized Consideration is significantly positively correlated with the variables of Student Engagement in online courses. That is, there exist significant positive linear correlations between the variables of online instructor TL and Student Engagement in online courses.

3.4.2 Influence of Online Instructor TL on Student Engagement

With the statistically significant positive linear correlations between the variables of online instructor TL and Student Engagement confirmed in the previous analysis, it is thus feasible to perform multiple linear regression analysis to determine whether the variables of online instructor TL can predict Student Engagement in online courses and what variables of online instructor TL can be primary predictors of student engagement in online courses.

The results of the multiple linear analysis revealed that not all the independent variables are recognized as significant predictors of Student Engagement in online courses (see Table 3). Only two predictor variables are statistically significant, i.e., Idealized Influence (Attribute) ($p = .000 < .05$) and Intellectual Stimulation ($p = .028 < .05$). Therefore, these two independent variables are included in the final model(s) together with the constant. The analysis resulted in two linear regression models. In the first model, the Beta weight suggests that Idealized Influence (Attribute) ($\beta = 0.653$, $p = .000 < .05$) is the only statistically significant predictor of Student Engagement in online courses. In the second model, the Beta weight suggests that Idealized Influence (Attribute) ($\beta = 0.507$, $p = .000 < .05$) and Intellectual Stimulation ($\beta = 0.212$, $p = .028 < .05$) are the two primary significant predictors of Student Engagement in online courses. The strength of relationship between the predictor variable(s) and the predicted variable is demonstrated by the value of R (see Table 4). The results indicate that the relationship in Model 2 ($R = .671$) is slightly stronger than that in Model 1 ($R = .653$). The value of Durbin-Watson is 1.999 (≈ 2), verifying the independence of residuals. In the first model, 42.6% of the variance in Student Engagement in online courses can be explained by Idealized Influence (Attribute), while in the second model, 45% of the variance can be accounted for by two primary predictors, Idealized Influence (Attribute) and Intellectual Stimulation. As presented in the table of model summary, the value of Adjusted R Square increases from .421 to .440 (see Table 5), indicating that the addition of Intellectual Stimulation in Model 2 improves the model fit.

Table 3
Spearman correlations matrix among the independent variables of online instructor TL

	TL1	TL2	TL3	TL4	TL5
TL1	1.000	.760**	.775**	.633**	.751**
TL2	.760**	1.000	.773**	.702**	.742**
TL3	.775**	.773**	1.000	.655**	.723**
TL4	.633**	.702**	.655**	1.000	.649**
TL5	.751**	.742**	.723**	.649**	1.000

TL1 = Idealized Influence (Attribute), TL2 = Idealized Influence (Behavior), TL3 = Inspirational Motivation, TL4 = Intellectual Stimulation, TL5 = Individualized Consideration
**. Correlation is significant at the 0.01 level (2-tailed).
N = 118

Table 4
Coefficients of multiple linear regression

Model		Unstandardized Coefficientsa	Std Coefficientsa	Sig.
		B	Beta	
1	(Constant)	2.928		.000
	TL1	.340	.653	.000
2	(Constant)	2.793		.000
	TL1	.264	.507	.000
	TL4	.116	.212	.028

TL1 = Idealized Influence (Attribute), TL4 = Intellectual Stimulation
Dependent variable: Student Engagement

Table 22
Model summary of multiple linear regressions

Modelc	1	2
R	.653a	.671b
R square	.426	.450
Adjusted R square	.421	.440
Std Error of Estimate	.30426	.29918
Durbin-Watson		1.999

Predictor variable: (Constant), Idealized Influence (Attribute).

a. Predictor variable: (Constant), Idealized Influence (Attribute), Intellectual Stimulation.

b. Dependent variable: Student Engagement.

Based on the analysis of the multiple linear regression output, the first model can be established as: Student Engagement = 2.928 + 0.340 × Idealized Influence (Attribute) + ε, and the second model can be identified as: Student Engagement = 2.793 + 0.264 × Idealized Influence (Attribute) + 0.116 × Intellectual Stimulation + ε. ε stands for the residual error in both equations. In the first model, the regression equation demonstrates a positive linear relationship between Student Engagement in online courses and Idealized Influence (Attribute), the biggest predictor. Idealized Influence (Attribute) contributes significantly to Student Engagement in online courses. The higher the value of Idealized Influence (Attribute), the higher the value of Student Engagement. The second model involves two statistically significant predictor variables: Idealized Influence (Attribute) and Intellectual Stimulation as cofounders. The regression equation reveals a positive linear relationship between these two predictor variables and the dependent variable. However, the magnitude of the association between Idealized Influence (Attribute) and Student Engagement is stronger than that between Intellectual Stimulation and Student Engagement.

4. IMPLICATIONS AND RECOMMENDATIONS

The results of this study have significant implications for the application of instructor TL in the implementation of college and university online courses. Firstly, instructor TL behaviors are confirmed to exist in online courses. Online instructor TL behaviors in general are perceived slightly favorably according to the results of collected survey responses. Student engagement has been explored as a working mechanism that mediates between instructor TL and student's academic performance (Balwant et al., 2018). The significant positive linear correlations between online instructor TL and student engagement suggest that online instructors are expected to demonstrate more TL behaviors to effectively promote student engagement in online courses. Therefore, all educational stakeholders, especially HEI administrators, online instructors, and course developers, should work collaboratively to create more opportunities for online instructors to exhibit more TL behaviors. For example, online instructor may present more TL behaviors through the development of student-friendly course syllabi, assignments, online discussions, evaluation and feedbacks, and in-and-outside class communications. It is important to integrate instructor TL behaviors into online instructor professional development framework.

Secondly, multiple linear regression analysis revealed that Idealized Influence (Attribute) and Intellectual Stimulation are the two primary predictors of student engagement in online courses. Therefore, online instructors are expected to demonstrate more TL behaviors associated with these two TL components so that they can more effectively engage students in online courses. That is, online instructors should be encouraged to articulate a shared vision and communicate a higher expectation for students by using motivational language in the development of course syllabi, curriculum, assignments, and online discussions. In collaboration with HEI administrators and online curriculum developers, online instructors are also expected to create assignments and topics reflective of Intellectual Stimulation that require students to be more creative and innovative in

problem solving. These can be achieved by incorporating the training of online transformational instructors in HEI teacher professional development (TPD) session.

Inevitably, limitations are recognizable in several areas regarding the research design of this study. Due to time constraints in the process of data collection, this study used convenience sampling to collect data concerning student perceptions of online instructor TL and student engagement in online courses. The collected sample from the population in the selected University was limited in size (N = 118). Creswell (2009) argued that the weakness of convenience sampling is that it might compromise the representativeness of the sample to the targeted population, and thus limit the generalizability of the findings in this study. Therefore, future research should consider collecting data from a larger sample and including more universities in the targeted population.

A second limitation of this research is the use of self-report Likert-scale questionnaires as survey instruments to collect student perceptions of the online instructor TL and student engagement variables. The weakness is that the use of the survey instruments subjects the study to subjective bias, and thus to sampling error. Future studies should also consider including qualitative studies such as interviews with students as well as online instructors for their experiences regarding the application of instructor TL behaviors in online courses.

Future research should also consider conducting longitudinal studies to keep track of the processive influence of online instructor TL behaviors on student engagement, which can help minimize the potential weakness underlying the synchronic cross-sectional studies. It is also hoped that future studies should consider comparing student perceptions of instructor TL in both traditional f2f courses and online courses. This might be beneficial in offering insights as to the influence of instructor TL on student engagement in both settings.

CONCLUSION

As a newly emergent instructional modality made possible with the internet and ICT technologies, online courses in HEIs have been positively accepted in colleges and universities for the inherent technological advantages since the 1990s. However, online instructors have been faced with unprecedented challenges in effectively engaging students in online courses partly due to the lack of instructor physical presence and f2f interaction, which have an adverse effect on student satisfaction and learning outcomes. Researchers and scholars have validated the effectiveness of the application of TL theories in traditional f2f classroom courses. Similar studies have been made in online course settings, mainly investigating how instructor TL influences student satisfaction and learning performance while largely neglecting the correlation between online instructor TL and the working mechanism, i.e., student engagement in online courses. The findings of this study have confirmed the existence of instructor TL in online courses, the statistically significant positive linear correlations between online instructor TL and student engagement in online courses, and the significant influence of Idealized Influence (Attribute) and Intellectual Stimulation on effective Student Engagement. Therefore, HEIs should encourage the training of online instructors as transformational leaders in instructor professional development session.

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