

# Moderating Relationships: Non-Designer Instructors' Teaching Presence and Distance Learners' Cognitive Presence

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## Abstract

Distance learning enrollments in higher education continue to grow, and academic leaders increasingly use non-designer instructors (NDIs) to meet demand. NDIs have little control over some aspects of teaching presence, including course design through instructional media resources included in a predesigned master course. This study used the Community of Inquiry (COI) survey to investigate (a) do distance learners' perceptions of their NDIs' teaching presence predict their cognitive presence; and (b) does distance learners' use of instructional media resources moderate the relationship between their perceptions of NDIs' teaching presence and learners' cognitive presence. Multiple regression results indicated that perceptions of NDIs' teaching presence predicted learners' perceptions of cognitive presence, but learners' use of instructional media failed to moderate that predictive relationship. Limitations and directions for future research are discussed.

*Keywords:* Community of Inquiry, teaching presence, cognitive presence, non-designer instructors, distance learners, instructional media, course design, distance education

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### **Moderating Relationships: Non-Designer Instructors' Teaching Presence and Distance Learners' Cognitive Presence**

Distance learning increasingly represents a viable option for higher education attainment. In fall 2018, 35.3% of U.S. students enrolled in at least one higher education distance course (National Center for Education Statistics, 2019). Distance learning faces many challenges, including retention rates, which may be lower compared to classes offered in traditional campus settings (Allen & Seaman, 2013; Bawa, 2016). A possible reason for lower retention rates in distance education could stem from distance learners' perceptions of isolation (MacDonald & Campbell, 2012). As a result, academic progress is thwarted and retention is negatively impacted (Boton & Gregory, 2015; Ladyshevsky, 2013; MacDonald & Campbell, 2012; Richardson et al., 2016). Consequently, investigations into strategies for promoting distance learner success factors have been well documented in the literature (Hostetter & Busch, 2013; Kirmizi, 2015; Kožuh et al., 2015; Ladyshevsky, 2013).

Despite challenges, distance learning may be particularly attractive due to flexibility in delivery, which allows learners to connect anytime anywhere (James et al., 2016). However, such flexibility might also cause distance learners to feel less connected with their instructors and peers (Ladyshevsky, 2013). Prior research demonstrates that teaching presence, seen as a combination of instructors' "actions, behaviors, and tools," influences learner success factors, including learners' participation and perceptions of learning (Richardson et al., 2016, p. 95). Distance instructors can reduce distance learners' concerns and promote learning through their teaching presence (Kupczynski et al., 2010). One aspect of teaching presence relates to effective course design, the organization and learning resources that are available in the distance course. Effective and organized course design may alleviate frustrations and dissatisfaction associated with lack of academic success (Kupczynski et al., 2010).

Unfortunately, aspects of teaching presence like course design might be less attainable when courses are taught by instructors who were not part of the distance course design process, also referred to as non-designer instructors (NDIs; Richardson et al., 2016). Specifically, NDIs do not control the content, resources, organization, or assessment in distance courses they teach (Richardson et al., 2016). To meet demand for distance education, higher education institutions depend on a contingent (adjunct) work force (Mueller et al., 2013; Piña & Bohn, 2014). An increasing number of contingent faculty teach courses they did not design (Mandernach et al., 2015) and can be classified as NDIs. NDIs are often hired as contingent instructors after courses are designed, further limiting NDIs' opportunities to promote teaching presence through course design (Mandernach et al., 2015). With increased reliance on contingent faculty, academic leaders cannot always identify instructors who can promote the desired teaching presence in the distance education classroom (Mueller et al., 2013; Piña & Bohn, 2014).

Additionally, universities may use master courses for multiple sections of the same distance course, thereby involving few contingent faculty in the design of the distance courses they teach (Borgemenke et al., 2014). Previous research indicates that distance learners assumed their instructors designed the online courses they taught, including organization, activities, structure, and resources (Richardson et al., 2015). NDIs reported some level of frustration at inability to influence course design, which impacted their instructional behaviors (Richardson et al., 2016). Since NDIs are often unable to influence the course design dimension of teaching presence, they are potentially at a disadvantage to support struggling learners who associate ineffective course design or lack of instructional resources with their ability to progress academically (Kupczynski

et al., 2010; Richardson et al., 2016). Participation levels and learning may suffer for lower division or undergraduate learners enrolled in poorly organized or resourced distance courses (Kupczynski et al., 2010).

### **Theoretical Foundation: Community of Inquiry Framework**

A Community of Inquiry (COI; Garrison et al., 1999) refers to a group that engages in purposeful discourse to create shared understanding, reflection, or personal meaning. Social, teaching, and cognitive presence represent three interdependent elements that shape the learning environment and contribute to meaningful learning experiences (Garrison et al., 1999). These forms of presence collectively generate and sustain engaged, meaningful learning in distance learning communities and contribute to learner success (Garrison et al., 2010; Kupczynski et al., 2010; Lambert & Fisher, 2013). The COI framework (Garrison et al., 1999) is used in the current study to frame the three forms of presence that support success in the distance classroom.

#### ***Social Presence***

Garrison and colleagues (2000) defined social presence as learners' perceptions of belonging, comfort level with communication, and affective interactions. Examples of social presence include the ability of both distance learners and instructors to project themselves as unique individuals and engage others in constructivist learning through a collaborative, online community (Arbaugh et al., 2008). Numerous studies support the positive relationship between social presence and learner satisfaction, learning interactions, and academic progress (Cui et al., 2013; Hostetter & Busch, 2013). However, varying definitions of social presence question the reliability of those findings (Kilic-Cakmak et al., 2014; Pollard et al., 2014), with some concluding that social presence is inextricable from other forms of presence (Armellini & De Stefani, 2016). While social presence is manifested and perceived in relational measures that NDIs may directly influence through interactions with learners, teaching presence encompasses instructor activities and behaviors that social presence does not. NDIs may have comparatively less influence on aspects of teaching versus social presence. The current study measured social presence using the Garrison and colleagues (2000) definition.

#### ***Teaching Presence***

Teaching presence is comprised of three subfactors: direct instruction, facilitating discourse, and course design (Garrison et al., 2000). Through direct instruction and facilitating discourse, teaching presence includes instructors' efforts to clearly communicate course requirements, provide responsive feedback and shape opportunities for collaborative discourse (Garrison et al., 2000). Through course design, teaching presence includes course organization and instructional media resources that support students' learning needs (Hosler & Arend, 2012; Ladyshevsky, 2013; MacDonald & Campbell, 2012; Makri et al., 2014; Preisman, 2014). Instructional media resources include videos, audio podcasts, interactive e-learning modules, presentations, simulations, digital image files or text documents, and visualizations (Daspit & D'Souza, 2012; Zawacki-Richter et al., 2015). The current study focused on learner instructional media use to operationalize the teaching presence course design subfactor.

Instructional media resources potentially promote cognitive presence (Frisby et al., 2013) by scaffolding students' learning around threshold concepts or difficult knowledge (Bricknell & Muldoon, 2013; Daspit & D'Souza, 2012; Dunlap et al., 2016; Ladyshevsky & Pettapiece, 2015; Layne & Ice, 2016; MacDonald & Campbell, 2012; Richardson & Swan, 2003; Whiteside, 2015).

Although NDIs do not fully control the course design subfactor of teaching presence, they may influence the other two subfactors of teaching presence, direct instruction and facilitating discourse, as well as social presence.

### ***Cognitive Presence***

While social and teaching presence manifest through behaviors, interactions and course-specific aspects, cognitive presence focuses on deeper, more meaningful learning that occurs in online learning communities (Akyol & Garrison, 2011). Cognitive presence represents “the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry” (Garrison et al., 1999, p. 5). It is represented as learners' perceptions of their own learning through “deep and meaningful understanding as well as content-specific critical inquiry abilities, skills, and dispositions” (Garrison et al., 1999). Cognitive presence encompasses collaborative problem solving and construction of meaning through interactions in the distance classroom (Akyol & Garrison, 2011), and can be measured through learners' perceptions of their own learning (as in the current study) or their academic scores (Frisby et al., 2013).

### ***COI Summary***

Some COI research indicates that social presence mediates the relationship between teaching presence and cognitive presence (Garrison et al., 2010; Shea & Bidjerano, 2009). Other findings conclude that teaching presence supports both social and cognitive presence (Arbaugh et al., 2008; Lambert & Fisher, 2013; Makri et al., 2014; Zhang et al., 2016). Effective course design, one of three subfactors of teaching presence, positively supports distance learners' cognitive presence, or perceptions of their own learning (Kupczynski et al., 2010). This finding appears particularly relevant to the current study's focus on NDIs: without the ability to control course design, including course-specific aspects like instructional media resources, NDIs may be disadvantaged in supporting learners who struggle due to ineffective course design or insufficient instructional resources. Because learners typically are unaware of their instructors' design status (Richardson et al., 2015), NDIs' teaching presence could be negatively perceived by struggling students who connect effective course design with perceptions of their own cognitive presence.

### ***The Current Study***

Despite the growing number of contingent faculty in distance education (Mueller et al., 2013), few studies investigate the influence of NDIs' teaching presence on learner success factors, such as distance learners' perceptions of learning. The current study addresses a stated need for research on components of teaching, learning, and social presence from the COI framework in different learning contexts, such as that of NDIs (Richardson et al., 2016; Richardson et al., 2015). There are no studies that examine whether learners' perceptions of NDIs' teaching presence through the subfactor of course design predicts learners' perceptions of their own cognitive presence. Additionally, there are no studies that examine the possible moderating role for aspects of the teaching presence course design subfactor on the possible relationship between learners' perceptions of NDIs' teaching presence and learners' perceptions of their own cognitive presence. Since instructional media resources are components of course design (Czerkawski & Lyman, 2016; Dockter, 2016), this study asks whether learners' use of instructional media moderates the predictive relationship between distance learners' perceptions of NDIs' teaching presence and perceptions of their own cognitive presence.

The current study posed the following research questions and hypotheses:

**Research Question 1 (RQ1):** Do distance learners' perceptions of their NDIs' teaching presence predict their cognitive presence?

H<sub>01</sub>: Distance learners' perceptions of their NDIs' teaching presence do not significantly predict distance learners' cognitive presence.

H<sub>1a</sub>: Distance learners' perceptions of NDIs' teaching presence do significantly predict online learners' own cognitive presence.

**Research Question 2 (RQ2):** Does distance learners' use of instructional media resources moderate the relationship between their perceptions of their NDIs' teaching presence and learners' cognitive presence?

H<sub>02</sub>: Distance learners' use of instructional media resources does not significantly moderate the relationships between their perceptions of their NDIs' teaching presence and learners' cognitive presence.

H<sub>2a</sub>: Distance learners' use of instructional media resources does significantly moderate the relationship between their perceptions of their NDIs' teaching presence and learners' cognitive presence.

## Methods

### Participants

Participants were students enrolled in a medium-sized private, religious university in the western United States who were enrolled in specific summer and fall semester courses taught by NDIs. Initial survey responses totaled 310; following data cleaning, removal of duplicate or ineligible responses and outliers, the final sample included 125 learners. Participant demographic data are summarized in Table 1.

**Table 1**

*Descriptive Statistics of Study Sample, n = 125.*

		Frequency	Percentage
<b>Academic Term</b>	Summer	77	61.6
	Fall	48	38.4
<b>Age</b>	18 to 22	15	12.0
	23 to 32	32	25.6
	33 to 45	62	49.6
	45+	16	12.8
<b>Gender</b>	Female	99	79.2
	Male	26	20.8

<b>Race</b>	American Indian or Alaska Native	7	5.6
	Asian	5	4.0
	Black or African American	19	15.2
	Native Hawaiian	0	0
	Other Pacific Islander	2	1.6
	White	74	59.2
	Decline to state	12	9.6
	Multiple races	6	4.8
<b>Ethnicity</b>	Hispanic or Latino	38	30.4
	Not Hispanic or Latino	81	64.8
	Decline to state	6	4.8
<b>Academic Level</b>	General studies/Certificate/Undeclared	6	4.8
	Undergraduate	110	88.0
	Graduate	9	7.2
<b>Previous Distance Courses</b>	1 or fewer	22	17.6
	2 to 3	22	17.6
	More than 3	81	64.8
<b>Technology Comfort Level</b>	Need daily assistance with all technology	1	0.8
	Need occasional assistance with course related technology	16	12.8
	Rarely need assistance with course related technology	18	14.4
	Self-sufficient using course related technology	64	51.2
	Able to assist others with course related technology	26	20.8

## Measures

### *Instructional Media Views*

Across all NDI courses targeted in the current study, a total of 349 instructional media resources were available, including videos and non-narrated presentations (36%), narrated presentations (32%), and interactive learning modules (32%). NDIs in the current study could not edit the course shell, and all courses included had similar types of instructional media resources available. Although NDIs could not edit the course shell, it is possible that some NDIs may have supplemented instructional media resources, such as through external links or attachments in discussion posts or announcements. It was not possible to account for this possibility in the current

study, and only the instructional media resources included in each predesigned course were considered to measure instructional media views. Learners' user activity archived within the learning management system (LMS) represented frequencies of instructional media use as the number of times each respondent viewed one of the resources (see Table 2). Those data were operationalized as the variable labeled Views for analysis.

**Table 2**

*Participants' Frequencies of Instructional Media Views by Type*

	Videos/Non-Narrated Presentations	Narrated Presentations	Interactive Learning Modules	Did not use instructional media
<i>n</i>	125	125	125	125
Sum	109	79	55	9
% of Total	43%	31%	22%	4%

### **COI Survey**

The 34-item COI Survey was used to measure the three components of presence: teaching, cognitive, and social presence. Each component has several subfactors that together comprise the related construct. Teaching presence includes 13 items that correspond to the 3 subfactors of course design, facilitating discourse, and directing instruction. Cognitive presence contains four subfactors, with three questions each to reflect the practical inquiry learning model (Garrison, 2016): (a) triggering event; (b) exploration; (c) integration; and (d) resolution. Social presence includes nine items with three subfactors in the distance community: (a) affective expression, or perception of belongingness in an online community; (b) open communication, or comfort level to communicate with others in the community; and (c) group cohesion, or trusting others in the community enough to express individual points of view (Garrison et al., 2001). The COI Survey is a reliable instrument (Diaz et al., 2010; Garrison et al., 2010; Swan et al., 2008). The current study reports acceptable internal consistency values for the COI total score ( $\alpha = .97$ ) and each component of presence: teaching ( $\alpha = .94$ ), cognitive ( $\alpha = .89$ ), and social ( $\alpha = .89$ ).

### **Procedure**

Learners in the current study were unaware of their instructors' NDI status. In the current study, 79 different NDIs taught the distance courses, including two who were new to teaching at the university but were experienced online instructors. To mitigate possible variability in NDIs' teaching preparation, all NDIs were provided with online training resources and coaching. Additionally, all NDIs in the current study were required to comply with faculty expectations that included measures to promote teaching presence (e.g., frequency of postings, providing feedback). NDIs were unable to edit their course resources, assignments, or deadlines; however, NDIs could share other instructional media resources in discussion forums or announcements if desired. The current study did not track learner views of instructional media resources shared in this way; only views for instructional media embedded in the original course were collected. All courses in the

current study followed identical course design structure and organization according to established university standards and best practices. All included courses incorporated instructional media resources, part of course design, which were intended to promote teaching presence.

Data were collected over 2-week intervals during 2 sequential 8-week academic terms (summer and fall) that spanned a 16-week period. To incentivize participation, a drawing for one of ten \$10 gift cards was offered. In the final weeks of each designated 8-week academic term, an email invitation was distributed through the LMS to distance learners enrolled in courses taught by all 79 NDIs whose courses were included in the current study. Follow-up email reminders were sent every two days after the survey opened and on the day that the survey closed. Participants provided demographic data and completed the COI Survey (Arbaugh et al., 2008). One week after each academic term ended, archival frequency data of learners' use of instructional media resources were collected from the LMS. Demographic data, survey response data and LMS archival data were matched by distance learners' usernames in raw data files and anonymized prior to aggregation, data cleaning, screening, and analysis. When each survey closed at the end of the academic term, gift cards were randomly awarded to 10 different participants via the email addresses they provided.

## Results

### Data Transformation and Analysis Plan

A multiple regression analysis was performed using two models to test the hypotheses in the current study using the following variables: (a) Teaching Presence, a predictor; (b) Views, a moderator; (c) Social Presence, a control; (d) Interaction term, the product of standardized Teaching Presence and Views variables; and (e) Cognitive Presence, an outcome.

Data were tested for multiple regression statistical assumptions. The variables Teaching Presence, Views, Social Presence and Cognitive Presence violated normality assumptions. Various data transformations were applied to each variable, a common practice when normality is violated (Tabachnick & Fidell, 2013). After re-examining transformed data for normality, the square root transformation was selected because it most closely approximated a normal distribution for each variable. Before multiple regression analysis, the Views and Teaching Presence variables were converted to standardized values to produce a common distribution scale. They were multiplied together to compute an interaction term for the second regression model.

A multiple regression was performed to predict Cognitive Presence from Teaching Presence, Views, Social Presence and the interaction of Teaching Presence and Views. Only two of the four variables significantly added to the prediction of Cognitive Presence at  $p < .05$  (Table 3). Regression coefficients and standard errors are presented in Table 4.



**Table 3**

*Moderation Effect for Each Predictor on the Relationship between Teaching Presence and Cognitive Presence<sup>e</sup>: Change Statistics, n = 125*

<i>Predictor</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>	<i>R Square Change</i>	<i>F Change</i>	<i>df1</i>	<i>df2</i>	<i>Sig. F Change</i>
a. TP (sqrt)	0.61	0.37	<b>0.37</b>	0.79	0.37	<b>72.22</b>	<b>1</b>	<b>123</b>	<b>.000</b>
b. TP (sqrt)									
Views (sqrt)	0.61	0.38	<b>0.37</b>	0.79	0.01	<b>1.11</b>	<b>1</b>	<b>122</b>	<b>.294</b>
c. TP (sqrt)									
Views (sqrt)									
Interaction (ZViews*ZTP)	0.61	0.38	<b>0.36</b>	0.79	0.00	<b>0.15</b>	<b>1</b>	<b>121</b>	<b>.697</b>
d. TP (sqrt)									
Views (sqrt)									
Interaction (ZViews*ZTP)									
SP (sqrt)	0.73	0.53	<b>0.51</b>	0.69	0.15	<b>38.06</b>	<b>1</b>	<b>120</b>	<b>.000</b>

<sup>a</sup> Predictors: (Constant), TP (sqrt)

<sup>b</sup> Predictors: (Constant), TP (sqrt), Views (sqrt)

<sup>c</sup> Predictors: (Constant), TP (sqrt), Views (sqrt), Interaction (ZViews\*ZTP)

<sup>d</sup> Predictors: (Constant), TP (sqrt), Views (sqrt), Interaction (ZViews\*ZTP), SP (sqrt)

<sup>e</sup> Dependent Variable: CP (sqrt)

Key:

Teaching Presence

Social Presence

Cognitive Presence

**Table 4**

*Contributions of Each Predictor on the Relationship between Teaching Presence and Cognitive Presence<sup>e</sup>: Coefficients, n = 125.1*

	Predictors	Unstandardized	95.0% CI		Standardized	Correlations	
		Coefficients	Lower	Upper	Coefficients	Zero-	Part
		B	Bound	Bound	$\beta$	order	
a.	TP (sqrt)	0.43	0.33	0.54	0.61	0.61	0.61
b.	TP (sqrt)	0.44	0.34	0.54	0.61	0.61	0.61
	Views (sqrt)	-0.08	-0.22	0.07	-0.08	-0.03	-0.08
c.	TP (sqrt)	0.44	0.34	0.54	0.61	0.61	0.61
	Views (sqrt)	-0.08	-0.22	0.07	-0.08	-0.03	-0.08
	Interaction (ZViews*ZTP)	0.04	-0.16	0.24	0.03	0.06	0.03
d.	TP (sqrt)	0.26	0.16	0.37	0.37	0.61	0.31
	Views (sqrt)	-0.08	-0.20	0.05	-0.08	-0.03	-0.08
	Interaction (ZViews*ZTP)	0.08	-0.10	0.25	0.06	0.06	0.06
	SP (sqrt)	0.48	0.32	0.63	0.46	0.65	0.39

Note: Significant contribution for predictor a.  $R^2 = .37$ ,  $\Delta R^2 = .37$ ,  $F(1,123) = 72.22$ ,  $p < .01$ .

Nonsignificant contribution for predictor b.  $R^2 = .38$ ,  $\Delta R^2 = .37$ ,  $F(1,122) = 1.11$ ,  $p > .05$ .

Nonsignificant contribution for predictor c.  $R^2 = .38$ ,  $\Delta R^2 = .36$ ,  $F(1,121) = .15$ ,  $p > .05$ .

Significant contribution for predictor d.  $R^2 = .53$ ,  $\Delta R^2 = .51$ ,  $F(1,120) = 38.06$ ,  $p < .01$ .

<sup>a</sup> Predictors: TP (sqrt)

<sup>b</sup> Predictors: TP (sqrt), Views (sqrt)

<sup>c</sup> Predictors: TP (sqrt), Views (sqrt), Interaction (ZViews\*ZTP)

<sup>d</sup> Predictors: TP (sqrt), Views (sqrt), Interaction (ZViews\*ZTP), SP (sqrt)

<sup>e</sup> Dependent Variable: CP (sqrt)

Key:

Teaching Presence

Social Presence

Cognitive Presence

### Research Question 1 (RQ1)

Do distance learners' perceptions of their NDIs' teaching presence predict their cognitive presence? Findings from the current study rejected the null hypothesis for RQ1, demonstrating that distance learners' perceptions of NDIs' teaching presence significantly predicted distance learners' perceptions of their own cognitive presence.

The predictor variable, Teaching Presence, the moderator variable, Views, and the control variable, Social Presence, were entered into the first model of the regression analysis, to test the direct effect of Teaching Presence on the outcome variable, Cognitive Presence, while controlling for the effect of Views and Social Presence (Table 5).  $R^2$  for the first model was 52.4% with an

adjusted  $R^2$  of 51.2%, which is considered a large effect (Tabachnick & Fidell, 2013). Model 1 significantly predicted 52.4% of the variation in Cognitive Presence at a level of significance,  $F(3,121) = 44.33$ ,  $p < .001$  (Table 5). Teaching Presence predicted approximately 52% of the variation within the dependent measure in Cognitive Presence, while controlling for Views and Social Presence.

### Research Question 2 (RQ2)

Does distance learners' use of instructional media resources moderate the relationship between their perceptions of their NDIs' teaching presence and learners' cognitive presence? Findings in the current study failed to reject the null hypothesis for research question two. The frequency of distance learners' use of instructional media resources did not significantly moderate the relationship between their perceptions of their NDIs' teaching presence and learners' perceptions of their own cognitive presence.

Results from Model Two reflected a nonsignificant proportion of the variance in Cognitive Presence,  $R^2$  change = .003,  $F(3,120) = .759$ ,  $p > .05$  (Table 5). Model Two, with the interaction term of standardized variables Views and Teaching Presence to test the second hypothesis, had an observed coefficient of determination,  $R^2 = .527$ . When all four variables were used in the model, they predicted about 53% of the variation within the dependent measure, Cognitive Presence.

**Table 5**

*Regression Models 1 and 2 Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1. Predictors: (Constant), SP (sqrt), Views (sqrt), TP (sqrt)	.724	.524	.512	.693	.524	44.328	3	121	.000
2. Predictors: (Constant), SP (sqrt), Views (sqrt), TP (sqrt), Interaction (ZViews*ZTP)	.726	.527	.511	.694	.003	.759	1	120	.385

Key:

SP = Social Presence

TP = Teaching Presence

CP = Cognitive Presence

Dependent Variable: CP (sqrt)

## Discussion

This study addressed the problem faced by the increasing population of NDIs whose teaching presence is potentially limited in aspects of course design through instructional media resources, which may hinder learners' perceptions of their own cognitive presence. A predictive relationship was hypothesized between distance learners' perceptions of their NDIs' teaching presence (predictor variable) on learners' cognitive presence (criterion variable), and if learners' use of instructional media (moderator variable) moderated that predictive relationship. The current study demonstrated that learners' perceptions of NDIs' teaching presence predicted learners' cognitive presence (RQ1). However, learners' use of instructional media failed to moderate the relationship between perceptions of NDIs' teaching presence and learners' cognitive presence (RQ2).

Findings in the current study supporting the relationship between perceptions of teaching presence and cognitive presence are consistent with existing literature (Hosler & Arend, 2012; Kupczynski et al., 2010; Ladyshevsky, 2013; MacDonald & Campbell, 2012), where both designer instructors and NDIs were included in the research (Preisman, 2014; Richardson et al., 2016; Richardson et al., 2015). This finding is particularly relevant in the current higher education environment, where an increasing number of contingent faculty are hired to teach distance courses they did not design (Mandernach et al., 2015). The current study expands the role of teaching presence as a predictor of cognitive presence to that of NDIs who teach distance courses (Richardson et al., 2016; Richardson et al., 2015). This means that although NDIs might not control the course design aspect of teaching presence, they may still influence students' perceptions of their own learning (cognitive presence). In the distance education classroom, other aspects of teaching presence include direct instruction, facilitating discourse or sharing additional resources via announcements or discussions posts. The current study did not control for NDI individual differences in sharing additional instructional media resources as an aspect of course design, or other subfactors of direct instruction or facilitating discourse, which represents a study limitation.

Instructional media represents an aspect of course design (Czerkawski & Lyman, 2016; Dockter, 2016), a subfactor of teaching presence (Garrison et al., 2000). Results from the current study showed a nonsignificant effect for the interaction between teaching presence and instructional media use on cognitive presence, which conflicts with the body of literature related to the role that technology-enabled activities play in course design (Daspit & D'Souza, 2012; Dunlap et al., 2016; Lambert & Fisher, 2013; Layne & Ice, 2016). However, recognizing that instructional media resources are only one component of course design, it is still possible that other factors involved in course design contributed to the role of teaching presence in predicting cognitive presence, which has been previously reported in the literature (Frisby et al., 2013; Kupczynski et al., 2010). Future studies might conduct similar research in a way that controls for these teaching presence subfactors of direct instruction and facilitating discourse.

The course sections included in the current study were consistent with one another in terms of overall design, organization, and structure, including the types of instructional media available. Such similarities from course to course might cause learners to experience the most variation in teaching presence from their NDIs' teaching presence behaviors of direct instruction and facilitation instead of from the available course instructional media resources. Course design consistency among sections corroborates existing research that supports the effect of course design on learners' perceptions of their academic progress and satisfaction (Arbaugh et al., 2008; Garrison et al., 2010; Hosler & Arend, 2012; Kupczynski et al., 2010; Lambert & Fisher, 2013; Makri et

al., 2014). Participants in the current study were unaware of their instructors' NDI status, so this factor likely did not influence learners' perceptions of their NDIs' teaching presence. Distance learners may have attributed the course design to their instructor, never assuming their NDI did not control course design (Richardson et al., 2015).

### **Application of Study Results to COI Framework**

The three components of the COI framework are naturally correlated, so much so that absence of one potentially impacts the other two (Garrison, 2016). The three components of presence are also prominent at varying times, including before and during the distance learning engagement (Arbaugh et al., 2008). Teaching presence begins with the design and organization of the course, including curriculum, assessments, and learning resources, but continues through the distance instructor's facilitation and direct instructional actions. Social presence manifests earlier when the distance course begins and learning community members are establishing rapport and navigating the parameters and boundaries of affectively connecting and making their presence known online (Arbaugh et al., 2008). Distance learners' cognitive presence is mediated by social presence, as well as predicted by teaching presence (Arbaugh et al., 2008; Garrison et al., 2010; Hosler & Arend, 2012; Kupczynski et al., 2010; Lambert & Fisher, 2013; Makri et al., 2014). All three subfactors of teaching presence are important and valued by distance learners, making the implications from the current study both theoretical and practical in the context of distance courses taught by NDIs (Richardson et al., 2016; Richardson et al., 2015).

Findings from the current study that support the predictive role of perceptions of NDIs' teaching presence on learners' cognitive presence have implications for contributing to learner satisfaction and academic progress (Hosler & Arend, 2012; Kupczynski et al., 2010; Preisman, 2014). Findings from this study supported by prior research provide practical implications for subject matter faculty, instructional designers, NDIs, and the academic leaders who hire them. It is important to recognize that perceptions of teaching presence, of which course design is an important subfactor, showed a predictive role that explained significant variance in cognitive presence. This aligns with prior research indicating that course design contributes to learners' perceptions of teaching presence in distance courses (Kupczynski et al., 2010). This is especially relevant in the current higher education climate, where the increased demand for distance learning requires academic leaders to fill teaching assignments with instructors who did not design the courses they teach (Mandernach et al., 2015).

Subject matter faculty and instructional designers could use the teaching presence measures of the COI framework to consistently build opportunities to promote teaching presence in design and engagement aspects of every distance course. This could be accomplished through the planning, organization, and standardized presentation of curriculum, activities, and assessments. NDIs could implement COI framework strategies that are within their sphere of influence, including social presence and the two subfactors of teaching presence (facilitating discourse and direct instruction) apart from course design. NDIs can address course design, organization, and learning activities when they clearly communicate course goals, program mission, instructions, and expectations. NDIs can further address teaching presence through directing learners to resources and to each other and by providing immediate, purposeful feedback to learners.

Practicing these teaching presence behaviors appears critical for NDIs who are hired to teach predesigned master courses long after these courses are designed by subject matter faculty (Mandernach et al., 2015), as was the case in the current study. All NDIs in the current study were

required to meet stated university teaching expectations, which helped establish some consistency in teaching presence behaviors among NDIs. However, it was not possible to fully control for all aspects of NDIs' teaching presence in the current study, which represents a study limitation.

### **Limitations**

This study used a convenience sample from a particular type of educational institution; thus, participants may not reflect the full population of distance learners. As such, the participants enrolled in the courses taught only by NDIs are somewhat random, although limited to those enrolled during the timing and course offerings during a given period of time in the academic year. It is possible that data collection using an online survey could have been less than desirable for distance learners who were already online for long periods of time, making it less likely that they might participate in or complete the study. Collecting data based on self-reported perceptions also presented a possible limitation of the current study, reflected in social desirability concerns (Roberts, 2016). The convenience sample was also relatively homogenous, which may limit generalizability of results. The inability to control for NDIs' actions to share external links and resources in discussion posts or announcements, as well as any other teaching presence behaviors through direct instruction or facilitating discourse, represents a limitation.

### **Direction for Future Research**

The context of this study expands upon previous work by examining perceptions of NDIs' teaching presence for its effect on learners' cognitive presence (Hosler & Arend, 2012; Kupczynski et al., 2010; Richardson et al., 2016; Richardson et al., 2015). Although no moderating effect was found in the current study, this research may spur further investigation in the possible unique role that course design elements such as instructional media resources could play in the predictive effect of teaching presence on cognitive presence. Moreover, academic leaders could use findings to establish training and evaluation criteria for distance instructors who teach courses they did not design. Finally, study findings can be used to inform instructional designers in designing distance learning courses that promote teaching presence, regardless of who teaches them.

In some cases, including the current study, distance learners may not know that instructors did not design elements of the course that they teach, including the course organization, activities, structure, and resources (Richardson et al., 2015). The courses used in this study had instructional media resources already embedded during the course design stage when the NDI was not involved. Although NDIs in the current study could not edit the course materials, they could direct learners to the instructional media resources, many of which were optional. NDIs could also share instructional media resources via announcements or discussion postings, which was not controlled for in the current study. These actions could potentially promote teaching presence through the subfactor of direct instruction. If learners do not associate their instructional media use with the NDIs' teaching presence behaviors, it calls into question whether use of instructional media resources can be measured as a part of NDIs' teaching presence that predicts learners' cognitive presence. Investigating this question may cause researchers to reevaluate whether the course design subfactor of teaching presence applies to all teaching contexts in distance education.

Other research suggests that it is possible that distance learners' cognitive presence is impacted by the course design factor of teaching presence more than the other two subfactors of teaching presence (Preisman, 2014). Previous research indicates that graded instructional media resources may elicit more motivation from learners compared to non-graded instructional media resources (Hartnett et al., 2014). Instructional media activities in the current study were primarily ungraded, which may have impacted learners' propensity to engage with these resources. Future research may investigate graded versus nongraded instructional media as potential moderators between perceptions of NDIs' teaching presence and learners' cognitive presence.

## References

- Allen, I. E., & Seaman, J. (2013, January 9). *Changing course: Ten years of tracking online education in the United States*.  
[https://onlinelearningconsortium.org/survey\\_report/changing-course-ten-years-tracking-online-education-united-states/](https://onlinelearningconsortium.org/survey_report/changing-course-ten-years-tracking-online-education-united-states/)
- Arbaugh, J. B., Cleveland-Innes, M., Diaz, S. R., Garrison, D. R., Ice, P., Richardson, J. C., & Swan, K. P. (2008). Developing a community of inquiry instrument: Testing a measure of the Community of Inquiry framework using a multi-institutional sample. *The Internet and Higher Education, 11*(3–4), 133–136. <http://doi.org/10.1016/j.iheduc.2008.06.003>
- Armellini, A., & De Stefani, M. (2015). Social presence in the 21st century: An adjustment to the Community of Inquiry framework. *British Journal Of Educational Technology, 47*(6), 1202–1216. <https://doi.org/10.1111/bjet.12302>
- Bawa, P. (2016). Retention in online courses: Exploring issues and solutions—A literature review. *SAGE Open, 6*(1), 1–11. <http://doi.org/10.1177/2158244015621777>
- Borgemenke, A. J., Holt, W. C., & Fish, W. W. (2014). Universal course shell template design and implementation to enhance student outcomes in online coursework. *The Quarterly Review of Distance Education, 14*(1), 17–23.
- Boton, E. C., & Gregory, S. (2015). Minimizing attrition in online degree courses. *Journal of Educators Online, 12*(1), 62–90.  
doi:<http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ1051044>
- Bricknell, L. K., & Muldoon, N. (2013). Rethinking online teaching and learning: A case study of an approach to designing an online learning environment. *The International Journal of Technology, Knowledge, and Society, 8*(4).
- Cui, G., Lockee, B., & Meng, C. (2013). Building modern online social presence: A review of social presence theory and its instructional design implications for future trends. *Education and Information Technologies, 18*(4), 661–685.
- Czerkawski, B. C., & Lyman III, E. W. (2016). An instructional design framework for fostering student engagement in online learning environments. *TechTrends, 60*(6), 532–539.  
<http://doi.org/10.1007/s11528-016-0110-z>
- Daspit, J. J., & D'Souza, E. E. (2012). Using the community of inquiry framework to introduce wiki environments in blended-learning pedagogies: Evidence from a business capstone course. *Academy of Management Learning & Education, 11*(4), 666–683.  
doi:10.5465/amle.2010.0154



- Diaz, S. R., Swan, K., Ice, P., & Kupczynski, L. (2010). Student ratings of the importance of survey items, multiplicative factor analysis, and the validity of the community of inquiry survey. *The Internet and Higher Education*, *13*(1–2), 22–30.  
<http://doi.org/10.1016/j.iheduc.2009.11.004>
- Dockter, J. (2016). The problem of teaching presence in transactional theories of distance education. *Computers and Composition*, *40*, 73–86.  
<http://doi.org/10.1016/j.compcom.2016.03.009>
- Dunlap, J. C., Verma, G., & Johnson, H. L. (2016). Presence + experience: A framework for the purposeful design of presence in online courses. *TechTrends*, *60*(2), 145–151.  
<http://doi.org/10.1007/s11528-016-0029-4>
- Frisby, B. N., Limperos, A. M., Record, R. A., Downs, E., & Kerckmar, S. E. (2013). Students' perceptions of social presence: Rhetorical and relational goals across three mediated instructional designs. *Journal of Online Learning & Teaching*, *9*(4), 468–480.
- Garrison, D. R. (2016). *E-learning in the 21st century: A community of inquiry framework for research and practice*. Routledge.
- Garrison, D., Anderson, T., & Archer, W. (1999). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, *2*(2–3), 87–105. [http://doi.org/10.1016/S1096-7516\(00\)00016-6](http://doi.org/10.1016/S1096-7516(00)00016-6)
- Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. <https://coi.athabascau.ca>
- Garrison, D. R., Cleveland-Innes, M., & Fung, T. S. (2010). Exploring causal relationships among teaching, cognitive and social presence: Student perceptions of the community of inquiry framework. *Internet and Higher Education*, *13*(1–2), 31–36.  
<http://doi.org/10.1016/j.iheduc.2009.10.002>
- Hartnett, M., St. George, A., & Dron, J. (2014). Exploring motivation in an online context: A case study. *Contemporary Issues in Technology and Teacher Education*, *14*(1), 31–53.
- Hosler, K. A., & Arend, B. D. (2012). The importance of course design, feedback, and facilitation: Student perceptions of the relationship between teaching presence and cognitive presence. *Educational Media International*, *49*(3), 217–229.
- Hostetter, C., & Busch, M. (2013). Community matters: Social presence and learning outcomes. *Journal of the Scholarship of Teaching & Learning*, *13*(1), 77.
- James, S., Swan, K., & Daston, C. (2016). Retention, progression and the taking of online courses. *Online Learning*, *20*(2), 1–23.

- Kirmizi, Ö. (2015). The influence of learner readiness on student satisfaction and academic achievement in an online program at higher education. *Turkish Online Journal of Educational Technology—TOJET*, 14(1), 133–142.
- Kožuh, I., Jeremic, Z., Sarjas, A., Bele, J., Devedzic, V., & Debevc, M. (2015). Social presence and interaction in learning environments: The effect on student success. *Journal of Educational Technology & Society*, 18(1), 223–236.
- Kupczynski, L., Ice, P., Wiesenmayer, R., & McCluskey, F. (2010). Student perceptions of the relationship between indicators of teaching presence and success in online courses. *Journal of Interactive Online Learning*, 9(2001), 23–43.  
<http://www.ncolr.org/jiol/issues/pdf/9.1.2.pdf>
- Ladyshevsky, R. K. (2013). Instructor presence in online courses and student satisfaction. *International Journal of the Scholarship of Teaching & Learning*, 7(1), 1–23.
- Ladyshevsky, R., & Pettapiece, R. G. (2015). Exploring adult learners usage of information communication technology during a virtual peer coaching experience. *Online Learning*, 19(2)
- Lambert, J. L., & Fisher, J. L. (2013). The community of inquiry framework: Establishing community in an online course. *Journal of Interactive Online Learning*, 12(1), 1–16.  
<http://www.ncolr.org/jiol/issues/pdf/12.1.1.pdf>
- Layne, M., & Ice, P. (2016). Emerging technologies and potential paradigmatic shifts in the Community of Inquiry framework. In R. D. Lansiquot (Ed.), *Technology, Theory, and Practice in Interdisciplinary STEM Programs* (pp. 9–30). Palgrave Macmillan Ltd.  
<http://doi.org/10.1057/978-1-137-56739-0>
- MacDonald, J., & Campbell, A. (2012). Demonstrating online teaching in the disciplines. A systematic approach to activity design for online synchronous tuition. *British Journal of Educational Technology*, 43(6), 883.
- Makri, K., Papanikolaou, K., Tsakiri, A., & Karkanis, S. (2014). Blending the community of inquiry framework with learning by design: Towards a synthesis of blended learning in teacher training. *Electronic Journal of e-Learning*, 12(2), 183–194.
- Mandernach, B. J., Register, L., & O'Donnell, C. (2015). Characteristics of adjunct faculty teaching online: Institutional implications. *Online Journal of Distance Learning Administration*, XVIII(1), 1–12.
- Mueller, B., Mandernach, B. J., & Sanderson, K. (2013). Adjunct versus full-time faculty: Comparison of student outcomes in the online classroom. *MERLOT Journal of Online Learning and Teaching*, 9(3), 341–353.

National Center for Education Statistics, U. S. Department of Education. (2019). *Integrated postsecondary education data system, Spring 2018 and Spring 2019, Fall enrollment component*. [https://nces.ed.gov/programs/digest/d19/tables/dt19\\_311.15.asp](https://nces.ed.gov/programs/digest/d19/tables/dt19_311.15.asp)

Preisman, K. A. (2014). Teaching presence in online education: From the instructor's point of view. *Online Learning, 18*(3).

Richardson, J., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks, 7*(1), 68–88.

Richardson, J. C., Besser, E., Koehler, A., Lim, J., & Strait, M. (2016). Instructors' perceptions of instructor presence in online learning environments. *International Review of Research in Open & Distance Learning, 17*(4), 82–103.

Richardson, J. C., Koehler, A., Besser, E., Caskurlu, S., Lim, J., & Mueller, C. (2015). Conceptualizing and investigating instructor presence in online learning environments. *International Review of Research in Open and Distributed Learning, 16*(3), 256–297.

Roberts, C. (2016). Response styles in surveys: understanding their causes and mitigating their impact on data quality. In C. Wolf, D. Joye, T. W. Smith, & Y. Fu (Eds.), *The SAGE handbook of survey methodology* (pp. 579–596). SAGE.

Swan, K., Shea, P., Richardson, J. C., Ice, P., Garrison, D. R., Cleveland-Innes, M., & Arbaugh, J. B. (2008). Validating a measurement tool of presence in online communities of inquiry. *E-Mentor, 2*(2), 1–12.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics, 6th Edition*. Pearson.

Whiteside, A. (2015). Introducing the social presence model to explore online and blended learning experiences. *Online Learning Journal, 19*(2).  
<http://olj.onlinelearningconsortium.org/index.php/olj/article/view/453>

Zawacki-Richter, O., Muskens, W., Krause, U., Alturki, U., & Aldraiweesh, A. (2015). Student media usage patterns and non-traditional learning in higher education. *The International Review of Research in Open and Distributed Learning, 16*(2), 136–170.