

1-31-2022

Higher Education Leadership Development During the COVID-19 Pandemic: An Exploration of Online Learner Readiness

Kevan W. Lamm
University of Georgia, kl@uga.edu

Alyssa Powell
University of Georgia, anpowell@uga.edu

L. Rochelle Sapp
University of Georgia, rsapp@uga.edu

See next page for additional authors

Follow this and additional works at: <https://newprairiepress.org/jiaee>



Part of the [Agricultural Economics Commons](#), [Growth and Development Commons](#), and the [University Extension Commons](#)

Recommended Citation

Lamm, K. W., Powell, A., Sapp, L., & Lamm, A. (2022). Higher Education Leadership Development During the COVID-19 Pandemic: An Exploration of Online Learner Readiness. *Journal of International Agricultural and Extension Education*, 29(1), 22-39. <https://doi.org/10.4148/2831-5960.1016>

This Research Article is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in *Journal of International Agricultural and Extension Education* by an authorized administrator of New Prairie Press. For more information, please contact cads@k-state.edu.

Higher Education Leadership Development During the COVID-19 Pandemic: An Exploration of Online Learner Readiness

Abstract

The COVID-19 pandemic precipitated profound disruptions across the higher education sector as institutions were forced to restructure entire systems and operate with significantly reduced resources. Most notably, many institutions were forced to transition to fully virtual instruction. The present study examined adult leadership development program participants' perceptions of online learning readiness during the transition to a fully virtual training environment precipitated by the COVID-19 pandemic. A census of the 2020 LEAD21 class was taken, and perceptions of online learning readiness were collected via a retrospective pre- and post-test. Descriptive and inferential statistics were used. Respondents had the highest levels of agreement with computer and Internet self-efficacy and the lowest levels of agreement with learner control in an online context. A paired t-test was conducted to analyze the difference in perceptions of online learning readiness post-training and retrospective pre-training. A statistically significant increase was observed for overall online learning readiness, as well as for computer and Internet self-efficacy, learner control, motivation for learning, Internet communication self-efficacy, and self-directed learning. An implication from this finding is that the transition to fully virtual training resulted in increased online learning readiness across all dimensions. With new strains of COVID-19 emerging and the potential for ongoing restrictions for social interaction, online learning will continue to be an important aspect of the educational process. It is vital that higher education leaders consider individuals' readiness to effectively engage in online training and instruction. Implications and recommendations for future research in practice in international contexts are provided.

Keywords

online learning readiness, higher education, leadership, virtual training, COVID-19

Authors

Kevan W. Lamm, Alyssa Powell, L. Rochelle Sapp, and Alexa Lamm

Higher Education Leadership Development during the COVID-19 Pandemic: An Exploration of Online Learner Readiness

Kevan W. Lamm, University of Georgia

Alyssa Powell, University of Georgia

L. Rochelle Sapp, University of Georgia

Alexa Lamm, University of Georgia

Abstract

The COVID-19 pandemic precipitated profound disruptions across the higher education sector as institutions were forced to restructure entire systems and operate with significantly reduced resources. Most notably, many institutions were forced to transition to fully virtual instruction. The present study examined adult leadership development program participants' perceptions of online learning readiness during the transition to a fully virtual training environment precipitated by the COVID-19 pandemic. A census of the 2020 LEAD21 class was taken, and perceptions of online learning readiness were collected via a retrospective pre- and post-test. Descriptive and inferential statistics were used. Respondents had the highest levels of agreement with computer and Internet self-efficacy and the lowest levels of agreement with learner control in an online context. A paired t-test was conducted to analyze the difference in perceptions of online learning readiness post-training and retrospective pre-training. A statistically significant increase was observed for overall online learning readiness, as well as for computer and Internet self-efficacy, learner control, motivation for learning, Internet communication self-efficacy, and self-directed learning. An implication from this finding is that the transition to fully virtual training resulted in increased online learning readiness across all dimensions. With new strains of COVID-19 emerging and the potential for ongoing restrictions for social interaction, online learning will continue to be an important aspect of the educational process. It is vital that higher education leaders consider individuals' readiness to effectively engage in online training and instruction. Implications and recommendations for future research in practice in international contexts are provided.

Keywords: online learning readiness, higher education, leadership, virtual training, COVID-19

Introduction

The COVID-19 pandemic precipitated profound disruptions across the higher education sector (Purcell & Lumbreras, 2021; Küsel et al., 2020). Higher education institutions were forced to restructure entire systems, transition to online instruction, and operate with significantly reduced resources (Purcell & Lumbreras, 2021; Kruse et al., 2020). Students reported increased levels of stress and had significant difficulty coping with the challenges caused by COVID-19 (Clabaugh et al., 2021). Academic leaders were forced to make critical decisions that affected the health and safety of students, faculty, staff, and the surrounding communities (Dumulescu & Mutiu, 2021). Overall, the disruptions of the pandemic revealed significant weaknesses and inefficiencies within the higher education sector (Kruse et al., 2020; Dumulescu & Mutiu, 2021).

Primarily, the onset of the COVID-19 pandemic precipitated an “unstructured boost in online teaching and learning” (Nworie, 2021, para. 4) across the higher education sector. Many students and faculty were unprepared to learn or teach in completely virtual settings (Nworie, 2021; Küsel et al., 2020). Furthermore, limitations regarding “robust online programs, sufficient instructional design and technology staff, appropriate course-development processes and/or adequately structured student support mechanisms” (Nworie, 2021, para. 2) resulted in negative experiences for those with limited online learning experience (Mishra et al., 2020).

To navigate the rapid and long-term changes precipitated by COVID-19, leaders in higher education needed to employ innovative leadership strategies to adequately respond to the needs of faculty, staff, and students (Seltzer, 2020; Dumulescu & Mutiu, 2021). Many of these reactive strategies have been identified as important areas of focus for future flexibility. For example, some have recommended institutions prepare for continued use of online learning and find ways to support students and teachers who engage in this method of instruction (Nworie, 2021). Furthermore, higher education leaders should develop “online educational policies that ensure high-quality pedagogical and technological strategies, [create] operational processes and procedures for online learning, [integrate] online learning in their strategic plans, and [develop] long-term support and maintenance structures” (Nworie, 2021, para. 28).

The present study examines the online learning readiness of adult leadership development program participants during the COVID-19 pandemic. At the time of writing, the existing literature lacks empirical research regarding the online learning readiness of adult leadership development participants in U.S. higher education, particularly those associated with the Land Grant University System. Previous research regarding online learning readiness during the COVID-19 pandemic has primarily been conducted in non-US settings (see Allam et al., 2020, Chung et al., 2020, Widodo et al., 2020, Tang et al., 2021). The present

study provides novel contributions to the literature by examining perceptions of online learning readiness of adult leadership development program participants and the transition to a fully virtual training environment precipitated by the COVID-19 pandemic.

Conceptual Framework

Leadership in Extreme Contexts

In extreme contexts, leaders “likely face multifaceted and dynamic human reactions” which require varying levels of adaptive and administrative leadership (Hannah et al., 2009, p.908; Seltzer, 2020). Therefore, leadership in response to extreme contexts must be dynamic and collaborative (Dumulescu & Mutiu, 2021). Due to the high environmental dangers and risks of consequences associated with extreme contexts, effective leadership is critical (Hannah et al., 2009; Geier, 2016). An extreme context is defined as an “environment where one or more extreme events are occurring or are likely to occur that may exceed the organization’s capacity to prevent and result in an extensive and intolerable magnitude of physical, psychological, or material consequences to – or in close physical or psycho-social proximity to – organization members” (Hannah et al., 2009, p.898).

Leadership in extreme contexts is also subject to various intensifiers and attenuators which influence the level of extremeness experienced by individuals (Hannah et al., 2009). Intensifiers are factors which may raise the level of extremeness experienced and reduce an organization’s ability to respond (Hannah et al., 2009). These include time (e.g., compression, duration, and frequency) and level of complexity. Increased frequency of extreme events may help form expertise, but prolonged duration and increased frequency of extreme events can reduce organizational resources (Hannah et al., 2009). Conversely, attenuators are factors which may reduce the probability or magnitude of extremeness experienced and can increase an organization’s ability to respond (Hannah et al., 2009). These include psychological, social, and organizational resources.

During extreme contexts, individuals look to existing leaders to centralize authority and take action (Geier, 2016; Hannah et al., 2009). Additionally, the expectation that followers have of current leaders going into the extreme context and the perception that leaders enforce may signal followers to look to the leader to establish control (Hannah et al., 2009).

Online Learning Readiness

The term “online learning readiness” was first coined by Warner and Choi (1998) in regard to vocational education outcomes. There are three principles of online learning readiness including 1) student preference for online delivery form

as opposed to face-to-face instruction; 2) student competence and confidence in use of Internet, use of computer-mediated communication, and use of electronic communication for learning; 3) student ability to engage in autonomous learning (Warner & Choi, 1998). While previous researchers (McVay, 2000; Smith et al., 2003) defined online learning readiness as a two-factor construct, Hung et al. (2010) developed and validated a five-factor structure for online learning readiness.

The resulting five dimensions were: 1) self-directed learning, 2) motivation for learning, 3) computer/Internet self-efficacy, 4) online communication self-efficacy, 5) learner control (Hung et al., 2010). Self-directed learning refers to the process by which “individuals take the initiative in understanding their learning needs, establishing learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes” (Hung et al., 2010, p.1081). Motivation for learning consists of intrinsic and extrinsic motivators as well as perceived value of learning and the anticipated success of learning (Hung et al., 2010). Computer and Internet self-efficacy is defined as an individual’s perception of their ability to use a computer to accomplish a task (Hung et al., 2010). Online communication self-efficacy refers to an individual’s perception of their ability to use Internet technology to communicate online (Hung et al., 2010). Finally, learner control is defined as the “degree to which a learner can direct their own learning experience and process” (Hung et al., 2010, p.1082).

Leadership in Extreme Contexts and Online Learning Readiness

For the purposes of the current study, the concepts of leadership in extreme contexts and online learning readiness were integrated. Specifically, the ongoing COVID-19 pandemic served as the antecedent, extreme condition within which the transition to online learning readiness was considered (Hannah et al., 2009) among higher education leadership development program participants.

Purpose and Research Objectives

The purpose of this study was to examine online learner readiness of adult higher education leadership development program participants in response to the COVID-19 pandemic. The study was driven by the following research objectives:

1. Describe participant’s retrospective perception of online learning readiness prior to completion of LEAD21.
2. Describe participant’s perception of online learning readiness following completion of LEAD21.
3. Determine if there is a difference in perception of online learning readiness prior to completion of LEAD21 and following completion of LEAD21.

Methods

This study employed a descriptive approach to examine the experiences of higher education leaders regarding the COVID-19 pandemic. The population of study was adult leadership development program participants. A census was taken of the 2020-2021 LEAD21 class. LEAD21 is a program committed to developing current and emerging leaders within the land grant institution system (Lamm et al., 2020). Each class typically completes three face-to-face sessions and a concurrent individual learning project. With the COVID-19 pandemic the program leadership made the decision to switch to a fully virtual version of the program with all three sessions held online using the Zoom platform. Program content is tailored to developing change, conflict management, communication, and collaboration within individuals, as a team, and on an organizational level (Lamm et al., 2020). Participants in this program include faculty and administrators primarily from Land Grant Universities as well as employees from the United States Department of Agriculture National Institute of Food and Agriculture (USDA NIFA). Land Grant Universities are a “college or university is an institution that has been designated by its state legislature or Congress to receive the benefits of the Morrill Acts of 1862, 1890, and 1994” (APLU, n.d.)

There were 76 participants in the 2020-2021 LEAD21 class, with 39% ($n = 30$) of participants identifying as female and 61% ($n = 46$) identifying as male. Regarding institutional representation, 86.8% ($n = 66$) represented 1862 institutions and 10.5% ($n = 8$) represented minority serving institutions (including 1890, 1994, and U.S. territory institutions). Additionally, 1.3% ($n = 1$) of participants represented Non-Land-Grant Agricultural and Renewable Resources Universities (NARRU) and 1.3% ($n = 1$) represented USDA NIFA or other institutions. Participants self-reported their job title, the most frequent titles were Associate Professor ($n = 13$) and Professor ($n = 9$). Participants were also asked to self-report the percentage of their appointments allocated to Academics (teaching), Research, Extension, and Administration. A total of 49 individuals indicated they had between a 10% ($n = 4$) and 100% ($n = 7$) Academic research appointment, with 50% reported as the most frequent Academic appointment ($n = 11$). Among the 26 individual who reported they had a 0% academic appointment, there were 22 who indicated they had between a 25% ($n = 1$) and 100% ($n = 12$) Extension appointment. Therefore there only four participants who indicated they did not have either an Academic nor Extension appointment.

Data were collected in June 2020, following the first online session of the program. The survey was distributed via Qualtrics, an online survey platform, and administered according to Dillman et al.'s (2014) tailored design method. The questionnaire collected information concerning participants' perception of online learning readiness following completion of the first LEAD21 session as well as their retrospective perception of online learning readiness prior to participating in

the session. The retrospective pre-test design was employed to ensure “reduction of response-shift bias due to the fact that the respondent is making the ratings from the same internal frame of reference” (Drennan & Hyde, 2008, p. 701; see Howard, 1980). Online learning readiness data were collected using the Online Learning Readiness Scale developed by Hung et al. (2010). The Online Learning Readiness Scale includes 18 items within five factor areas. Index scale scores were calculated according to the Hung et al. (2010) methodology. Seventy-four participants completed the survey, resulting in a response rate of 97.4%.

Data were analyzed using SPSS version 28. Descriptive statistics were calculated for retrospective pre- and post-test scores for each dimension of online learning readiness. A series of paired t-tests were used to compare retrospective pre- and post-test data and determine the influence of the LEAD21 program on perceptions of online learning readiness. Cohen’s *d* (1988) was calculated to quantify effect size. A significance level of .05 was determined *a priori*.

Results

To address research objective one, mean scores were calculated for the five dimensions of online learning readiness as well as overall online learning readiness based on respondent results for the retrospective pre-test. Respondents had the highest mean score for computer and Internet self-efficacy ($M = 4.41$, $SD = 0.54$) and the lowest mean score for learner control ($M = 3.48$, $SD = 0.44$). The overall online learning readiness score had a mean of 4.00 with a standard deviation of 0.42. A comprehensive list of the descriptive statistics for the retrospective pre-test are presented below in Table 1.

Table 1

Online Learning Readiness Scale Scores – Retrospective Pre-test

	<i>n</i>	<i>M</i>	<i>SD</i>	Min	Max
SE	74	4.41	0.54	3.00	5.00
MFL	74	4.28	0.44	3.25	5.00
OCS	74	4.06	0.64	2.33	5.00
SDL	72	3.82	0.59	2.40	5.00
LC	73	3.48	0.72	2.00	5.00
<i>Overall</i>	<i>71</i>	<i>4.00</i>	<i>0.42</i>	<i>3.00</i>	<i>4.94</i>

NOTE: SE – Computer/Internet self-efficacy; MFL – Motivation for learning (in an online context); OCS – Online communication self-efficacy; SDL – Self-directed learning; LC – Learner control (in an online context)

To address research objective two, mean scores for each dimension and overall online learning readiness were calculated based on respondent results from the post-test. Again, respondents reported the highest mean score for computer

and Internet self-efficacy ($M = 4.60$, $SD = 0.48$) and the lowest mean score for learner control ($M = 3.87$, $SD = 0.66$). The mean for overall online learning readiness was 4.26 with a standard deviation of 0.43. The full descriptive statistics for the post-test are presented in Table 2.

Table 2

Online Learning Readiness Scale Scores – Post-test

	<i>n</i>	<i>M</i>	<i>SD</i>	Min	Max
SE	74	4.60	0.48	3.00	5.00
MFL	73	4.48	0.42	3.75	5.00
OCS	74	4.19	0.70	1.33	5.00
SDL	72	4.14	0.56	2.60	5.00
LC	74	3.87	0.66	2.00	5.00
<i>Overall</i>	<i>71</i>	<i>4.26</i>	<i>0.43</i>	<i>3.28</i>	<i>5.00</i>

NOTE: SE – Computer/Internet self-efficacy; MFL – Motivation for learning (in an online context); OCS – Online communication self-efficacy; SDL – Self-directed learning; LC – Learner control (in an online context)

To address research objective three, respondent retrospective pre-test scores were compared to post-test scores using a paired-samples t-test. A statistically significant difference was observed between retrospective pre- and post-test conditions for the overall scale, $t(68) = 7.77$, $p < .01$. Additionally, there was a significant difference in scores between retrospective pre- and post-test conditions for computer and Internet self-efficacy, $t(73) = 3.90$, $p < .01$, self-directed learning, $t(70) = 7.07$, $p < .01$, learner control, $t(72) = 6.74$, $p < .01$, motivation for learning, $t(72) = 5.88$, $p < .01$, and online communication self-efficacy, $t(73) = 3.38$, $p < .01$. Each analysis had a small effect size (Cohen, 1988). Additional results and analysis are presented in Table 3.

Table 3.

Descriptive Statistics and t-test Results for Online Learning Readiness Retrospective Pre-test and Post-test

	Pre-test		Post-test		<i>n</i>	Dif- ference	95% CI for Mean Difference	<i>t</i>	<i>p</i>	<i>df</i>	Cohen' <i>s d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>							
LC	3.48	0.72	3.87	0.66	73	0.39	0.27, 0.50	6.74	.000*	72	0.49
SDL	3.82	0.59	4.15	0.57	71	0.33	0.24, 0.42	7.07	.000*	70	0.39
MFL	4.28	0.44	4.48	0.42	73	0.20	0.13, 0.27	5.88	.000*	72	0.29
SE	4.41	0.54	4.60	0.48	74	0.19	0.09, 0.29	3.90	.000*	73	0.43
OCS	4.06	0.64	4.19	0.70	74	0.13	0.06, 0.21	3.38	.001*	73	0.34
<i>Overall</i>	<i>4.00</i>	<i>0.42</i>	<i>4.26</i>	<i>0.43</i>	<i>69</i>	<i>0.26</i>	<i>0.20, 0.33</i>	<i>7.77</i>	<i>.000*</i>	<i>68</i>	<i>0.28</i>

Note: * $p < .01$; LC – Learner control (in an online context); SDL – Self-directed learning; MFL – Motivation for learning (in an online context); SE – Computer/Internet self-efficacy; OCS – Online communication self-efficacy

Conclusions, Implications, and Recommendations

The ongoing COVID-19 pandemic has presented numerous challenges to the economic (e.g. Artiga et al., 2020), health (e.g. Artiga et al., 2020), and social systems (e.g. Torales et al., 2020). As the nature of the pandemic emerged many policy makers in the United States issued orders regarding gatherings and interactions, “During March 1–May 31 [2020], 42 states and territories issued mandatory stay-at-home orders, affecting 2,355 (73%) of 3,233 U.S. counties” (Moreland et al., 2020, para. 5). Such policy mandates precipitated the need for the educational system, including higher education, to quickly adapt to the rapidly evolving environment (Blankenberger & Williams, 2020). One strategy educational institutions employed in response to the pandemic, and associated social distancing and stay-at-home orders, was the transition to online learning (Nworie et al., 2021; Purcell & Lumbreras, 2020; Kruse et al., 2020). At the time of this writing many institutes of higher education in the United States have resumed in-person instruction (Nadworny, 2021); however, in the United States and globally, the use of online, or distance, learning in higher education likely to continue to be a prominent instructional modality (Nworie et al., 2021).

The rapid shift to online instruction provides both challenges and opportunities for both learners and instructors. Although there has been research focused on the efficacy (Castro & Tumibay, 2021; Prior et al., 2016), satisfaction (Landrum et al., 2021; Shen et al., 2013), and acceptance (Kim et al., 2021) of online learning in the past, much of the existing literature focuses on primary, secondary, or post-secondary learners in formal classroom settings. While there are a limited number of studies focused on adult learners in online learning settings (see Kuo & Belland, 2016; Zembylas, 2009; Park & Choi, 2004; Huang, 2002), there is a noteworthy lack of research focused on the online learning readiness of established or emerging leaders within the higher education system

itself. More succinctly, little is known regarding the online learning readiness of potential instructors within the higher education system. The current research provides a novel contribution to the literature based on the nature of the study sample, and the timing of the data collection. First, the LEAD21 leadership development program provides a unique sample of individuals within higher education who have been identified as leaders, or emergent leaders. In the current study, 95% of program participants indicated they had either an Academic or Extension appointment. Therefore, the results may provide preliminary descriptive insights regarding the online learning readiness of both formal (Academic) and non-formal (Extension) instructors. Secondly, the timing of the data collection is noteworthy based on the proximity to stay-at-home orders and associated travel restrictions. The results provide not only an investigation of an audience of higher education professionals within the United States, but also may serve as model for future research among international audiences as well. Specifically, a recommendation would be to consider using the present study as a benchmark and to replicate the study among a range of international contexts.

Although the results of the study may provide insights regarding the online learning readiness of adults in a higher education leadership development program for both the literature and practice, it is important to acknowledge the limitations associated with the study. First, the study employed a convenience sample of a single class participating in a leadership development program for established and emerging leaders in higher education in the United States. Consequently, any observations, implications, or recommendations should be limited to the current sample. Extrapolation of findings beyond the sample should be done with caution. A recommendation would be to consider the results reported in the current study as a baseline set of findings and to replicate the study with larger samples of higher education instructors from both Academic and Extension areas. Additionally, as indicated previously, a recommendation would be to investigate both Academic and Extension online learning readiness in multiple international contexts. A second limitation is the nature of the data analysis associated with the study. Specifically, the current study focused on conducting descriptive analyses followed by a paired t-test. It should be acknowledged there may be antecedent, contextual, or confounding variables which may influence the data reported by participants. For example, there were no questions asking respondents to indicate if they had participated in fully online learning environments in the past. A recommendation is for future research to consider adding additional contextual variables to better illuminate the nature of the self-perceived online learning readiness.

Despite the noted limitations associated with the study, there are several implications from the observed results. Regarding objective one, describing participant's retrospective perception of online learning readiness prior to

completion of LEAD21, the results provide several insights. First, the participants self-reported the highest levels of agreement with the computer/Internet self-efficacy index. This finding is somewhat anticipated based on the nature of most higher education activities and the ubiquity of computer and internet usage, particularly in the United States (Jones et al., 2009). An associated recommendation may be to spend a short amount of time at the beginning of online learning programs to encourage participant to consider all the ways they have integrated computers and the Internet into their current work practices and to leverage these strengths while participating in an online learning environment. This recommendation is consistent with the self-efficacy literature whereby individuals are encouraged to focus on development from a belief and strengths perspective (e.g. Wilson, 2006; Jackson, 2002). However, from an international perspective this result may be an area for further investigation. For example, when examining Information and Communication Technology (ICT) capacities for effective Extension network functioning Lamm et al. (2019, 2021) found a range of perceived familiarity and use of ICTs.

Following computer/Internet self-efficacy participants had the second highest level of agreement with the motivation for learning in an online environment index. This result may imply the participants in the study were excited to participate in the LEAD21 and learn through the online environment. An associated recommendation with this result is for future research to replicate the study findings with different samples. For example, it is unclear whether the motivation to learn in an online context would be observed at the same levels within a sample of individuals attending a mandatory training versus individuals participating in a national leadership development program which requires a nomination and application process. Additionally, international contexts where varying levels of ICT access may also be an area for further investigation. An additional recommendation for future research would be consider replacing the unidimensional motivation index in the Online Learning Readiness Scale developed by Hung et al. (2010), and to instead consider a multidimensional measure of motivation, specifically, a measure developed to capture both the intrinsic and extrinsic nature of different participant motivations (e.g. VandeWalle, 1997). An associated recommendation for practice would be to consider providing the measure prior to the online learning program and to use the results to inform the introduction of the online platform. For example, if the results indicate learners are more motivated by intrinsic forces, the online program may be introduced as an opportunity to engage in a new and novel environment. Whereas, if the learners are more extrinsically motivated, a recommendation would be to focus on the necessity of the online environment and various benefits associated with the online learning such as reduced costs, reduced travel times, and more efficient delivery at scale.

Across the five index score areas participants had the lowest self-reported agreement with the learner control in an online context index area. This finding indicates, that across all the measured areas, this is the area where participants had the lowest level of agreement. Based on this result a recommendation for practice would be to encourage learners to focus on their what is in their control and their existing competence and capacity for using computers and the Internet. Pairing and area of strength with an area of development may provide learners with a framework for approaching the online environment from more of a growth perspective (e.g. Dweck, 2009) Furthermore, a recommendation would be to provide an opportunity to participants to engage in all of the technical aspects of the training at the beginning of the program. For example, if the session will use a chat feature, ensure all learners are able to use the feature successfully. Similarly, if the online experience will use a new or novel set of software, providing a guided technical check at the beginning of the program will ensure participants have an opportunity to gain competence and improve their perceptions of control in the online environment (Küsel et al., 2020; Muilenburg & Berge, 2005). Internationally, previous research (see House et al., 2004) has identified a multitude of cultural factors which may impact outcomes such as motivation, the role of the individual, power distance relations, and so forth. These factors may also be of interest in future studies as it relates to the online learner readiness, including perceptions of learner control in online environments are recommended for future research.

Regarding research objective two, describing participant's perception of online learning readiness following completion of LEAD21, the results of the study are noteworthy based on the consistency of observations between the retrospective pre- and post-test results. Specifically, although there is variation in the magnitude of observed increases across all five of the index areas, as well as for the scale overall, all measured areas increased from a post-test perspective. The results imply that participating in an online learning environment provided an opportunity for learners to increase the self-reported agreement, and associated capacity, across the areas of interest.

Lastly, objective three, determining if there was a difference in perception of online learning readiness prior to completion of LEAD21 and following completion of LEAD21 using paired t-test analysis, yielded several noteworthy results. Across the measured areas, learner control in an online context, had the largest observed increase from the retrospective pre- to post-test conditions. Furthermore, Cohen's *d* (1988) was calculated to quantify observed effect size, the observed increase in learner control in an online environment was found to be very close to the threshold to be considered medium. This effect size would indicate a significant improvement was experienced by participants in the program. An implication from this finding is participation in an online learning

environment may be an effective way to improve learner perceptions of control. Although somewhat intuitive in nature, a recommendation would be to ensure a wide variety of individuals, particularly those with teaching responsibilities, have an opportunity to participate in online learning environment, prior to encouraging them to develop such environments and platforms themselves. Based on Bandura's (1971) Social Learning Theory, an expectation would be for the observation of best practices and behaviors of others, in this case example online instructors, may help to inform the subsequent behaviors of the participants themselves. Therefore, a recommendation is to support and encourage individual participation in online learning environments with anticipated benefits accruing at the secondary level when higher education professionals employ beneficial online learning strategies in their own classes. Additionally, in international contexts a similar recommendation is posited. Specifically, finding opportunities for individuals to observe, engage in, and develop of level of comfort in online learning environments is recommended; furthermore care must be taken to first understand and appreciate the needs of learners when providing such opportunities.

In addition to the increase in the learner control in an online context area, all other measured areas also had statistically significant increases observed. The results would therefore imply participating in an online learning environment may have benefits across a wide range of online learning readiness areas. A recommendation for future practice would be for educators to consider if there are specific areas where particular focus may have the greatest potential impact for participants. Specifically, in addition to ensuring the content and learning objectives for an online learning program are sufficiently planned and executed a recommendation is for educators to consider how they may also improve the online readiness of program participants. Dedicating time to demonstrate online best practices may help to improve the overall effectiveness of higher education professionals in their instructional responsibilities.

The COVID-19 pandemic represents an extreme context in which many industries, including higher education, have required an abrupt changes to fundamental processes, such as teaching modality (Nworie et al., 2021; Mishra et al., 2020). The results of the present study indicate the established, and emerging, leaders' participation in an online leadership development program had statistically significant increases in their self-reported online learning readiness. Although the current study is limited to a sample within the United States, future research is encouraged to use the current findings as a benchmark and to replicate the findings across many different geographies and contexts. As different strains of COVID-19 emerge and different restrictions for social interaction are mandated globally (Dumulescu & Mitiu, 2020), it is important for higher education to

consider the readiness of individuals to effectively engage and learn in online environments.

References

- Allam, S. N. S., Hassan, M. S., Mohideen, R. S., Ramlan, A. F., & Kamal, R. M. (2020). Online distance learning readiness during COVID-19 outbreak among undergraduate students. *International Journal of Academic Research in Business and Social Sciences*, 10(5), 642-657. <http://dx.doi.org/10.6007/IJARBSS/v10-i5/7236>
- Association of Public & Land-Grant Universities. (n.d.). *Land-Grant University FAQ*. <https://www.aplu.org/about-us/history-of-aplu/what-is-a-land-grant-university/>
- Artiga, S., Garfield, R., & Orgera, K. (2020). Communities of color at higher risk for health and economic challenges due to COVID-19 (Issue Brief). *The Henry J. Kaiser Family Foundation*. <https://www.kff.org/coronavirus-covid-19/issue-brief/communities-of-color-at-higher-risk-for-health-and-economic-challenges-due-to-covid-19/>
- Bandura, A. (1971). *Social learning theory*. General Learning Press.
- Blankenberger, B., & Williams, A. M. (2020). COVID and the impact on higher education: The essential role of integrity and accountability. *Administrative Theory and Praxis*, 42(3), 404-423. <https://doi.org/10.1080/10841806.2020.1771907>
- Castro, M. D. B., & Tumibay, G. M. (2021). A literature review: Efficacy of online learning courses for higher education institution using meta-analysis. *Education and Information Technologies*, 26, 1367-1385. <https://doi.org/10.1007/s10639-019-10027-z>
- Chung, E., Subramaniam, G., & Dass, L. C. (2020). Online learning readiness among university students in Malaysia during COVID-19. *Asian Journal of University Education*, 16(2). <https://doi.org/10.24191/ajue.v16i2.10294>
- Clabaugh, A., Duque, J. F., & Fields, L. J. (2021). Academic stress and emotional well-being of United States college students following onset of the COVID-19 pandemic. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.628787>
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Wiley.
- Drennan, J., & Hyde, A. (2008). Controlling response shift bias: the use of the retrospective pre-test design in the evaluation of a master's programme. *Assessment & Evaluation in Higher Education*, 33(6), 699-709. <https://doi.org/10.1080/02602930701773026>
- Dumulescu, D., & Mutiu, A. I. (2021). Academic leadership in the time of COVID-19: Experiences and perspectives. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.648344>
- Dweck, C. (2009). Who will the 21st century learners be? *Knowledge Quest*, 38(2), 8-9.

- Geier, M. T. (2016). Leadership in extreme contexts: Transformational leadership. Performance beyond expectations? *Journal of Leadership and Organizational Studies*, 23(3), 234-247.
<https://doi.org/10.1177/1548051815627359>
- Hannah, S. T., Uhl-Bien, M., Avolio, B. J., & Cavarretta, F. L. (2009). A framework for examining leadership in extreme contexts. *The Leadership Quarterly*, 20, 897-919.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (Eds.). (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Sage publications.
- Howard, G. 1980. Response shift bias: A problem in evaluating interventions with pre/post self-reports. *Evaluation Review*, 4(1), 93-106.
<https://doi.org/10.1177/0193841X8000400105>
- Huang, H. (2002). Toward constructivism for adult learners in online learning environments. *British Journal for Educational Technology*, 33(1), 27-37.
<https://doi.org/10.1111/1467-8535.00236>
- Hung, M., Chou, C., Chen, C., & Own, Z. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers and Education*, 55(3), 1080-1090.
<https://doi.org/10.1016/j.compedu.2010.05.004>
- Jackson, J. W. (2002). Enhancing self-efficacy and learning performance. *The Journal of Experimental Education*, 70(3), 243-254.
<https://doi.org/10.1080/00220970209599508>
- Jones, S., Johnson-Yale, C., Millermaier, S., & Pérez, F. S. (2009). U.S. college students' internet use: Race, gender, and digital divides. *Journal of Computer-Mediated Communication*, 14, 244-264.
<https://doi.org/10.1111/j.1083-6101.2009.01439.x>
- Kim, E., Kim, J. J., & Han, S. (2021). Understanding student acceptance of online learning systems in higher education: Application of social psychology theories with consideration of user innovativeness. *Sustainability*, 13.
<https://doi.org/10.3390/su13020896>
- Kruse, S. D., Hackmann, D. G., & Lindle, J. C. (2020). Academic leadership during a pandemic: Department heads leading with a focus on equity. *Frontiers in Education*, 5. <https://doi.org/10.3389/feduc.2020.614641>
- Kuo, Y., & Belland, B. R. (2016). An exploratory study of adult learners' perceptions of online learning: Minority students in continuing education. *Educational Technology Research and Development*, 64, 661-680.
<https://doi.org/10.1007/s11423-016-9442-9>

- Küsel, J., Martin, F., & Markic, S. (2020). University students' readiness for using digital media and online learning – comparison between Germany and the USA. *Education Sciences, 10*.
<https://doi.org/10.3390/educsci10110313>
- Lamm, K. W., Lamm, A., Davis, K., Swaroop, B., & Edgar, L. (2019). Identifying information and communication technology use capacity needs of extension networks. *Journal of International Agricultural and Extension Education, 26*(3), 58-71.
<https://doi.org/10.5191/jiaee.2019.26304>
- Lamm, K. W., Lamm, A. J., Davis, K., Sanders, C. E., & Powell, A. (2021). Information and communication technology use capacity within extension networks: Development and preliminary validation of an empirical scale. *Journal of International Agricultural and Extension Education, 28*(4), 15-31. <https://doi.org/10.5191/jiaee.2021.28415>
- Lamm, K. W., Sapp, R., Lamm, A. J., & Randall, N. (2020). A longitudinal evaluation of conflict management capacity building efforts in higher education. *Journal of Agricultural Education, 61*(3), 75-85.
<https://doi.org/10.5032/jae.2020.03075>
- Landrum, B., Bannister, J., Garza, G., & Rhame, S. (2021). A class of one: Students' satisfaction with online learning. *Journal of Education for Business, 96*(2), 82-88. <https://doi.org/10.1080/08832323.2020.1757592>
- McVay, M. (2000). Developing a web-based distance student orientation to enhance student success in an online bachelor's degree completion program. Unpublished practicum report presented to the Ed.D. Program. Florida: Nova Southeastern University.
- Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open, 1*(1).
<https://doi.org/10.1016/j.ijedro.2020.100012>
- Moreland, A., Herlihy, C., Tynan, M. A., Sunshine, G., McCord, R. F., Hilton, C., Poovey, J., Werner, A. K., Jones, C. D., Fulmer, E. B., Gundlapalli, A. V., Strosnider, H., Potvien, A., García, M. C., Honeycutt, S., & Baldwin, G. (2020, September 4). Timing of state and territorial COVID-19 stay-at-home orders and changes in population movement – United States, March 1 – May 31, 2020 (Morbidity and Mortality Weekly Report Volume 69, Issue 35). *Centers for Disease Control and Prevention*.
<https://www.cdc.gov/mmwr/volumes/69/wr/mm6935a2.htm>
- Muilenburg, L. Y., & Berge, Z. L. (2005). Student barriers to online learning: A factor analytic study. *Distance Education, 26*(1), 29-48.
<https://doi.org/10.1080/01587910500081269>

- Nadworny, E. (2021, August 18). College move-in was supposed to mark a return to normal. Then came the delta variant. *NPR*. Retrieved from <https://www.npr.org/sections/back-to-school-live-updates/2021/08/18/1028802323/colleges-begin-the-fall-semester-in-person-with-covid-worries-about>
- Nworie, J. (2021, May 19). Beyond COVID-19: What's next for online teaching and learning in higher education? *Educause*. Retrieved from <https://er.educause.edu/articles/2021/5/beyond-covid-19-whats-next-for-online-teaching-and-learning-in-higher-education>
- Park, J., & Choi, H. J. (2009). Factors influencing adult learners' decision to drop out or persist in online learning. *Journal of Educational Technology and Society*, 12(4), 207-217.
- Prior, D. D., Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitude, digital literacy and self-efficacy: Flow-on effects for online learning behavior. *The Internet and Higher Education*, 29, 91-97.
- Purcell, W. M., & Lumbreras, J. (2021). Higher education and the COVID-19 pandemic: Navigating disruption using the sustainable development goals. *Discover Sustainability*, 2(1). <https://doi.org/10.1007/s43621-021-00013-2>
- Seltzer, R. (2020, September 9). Who leads colleges after COVID-19? *Inside Higher Ed*. Retrieved from <https://www.insidehighered.com/news/2020/09/09/what-college-presidents-say-about-leading-covid-19-era>
- Shen, D., Cho, M., Tsai, C., Marra, R. (2013). Unpacking online learning experiences: Online learning self-efficacy and learning satisfaction. *The Internet and Higher Education*, 19, 10-17. <https://doi.org/10.1016/j.iheduc.2013.04.001>
- Smith, P. J., Murphy, K. L., & Mahoney, S. E. (2003). Towards identifying factors underlying readiness for online learning: An exploratory study. *Distance Education*, 24(1), 57-67.
- Streiner, D. L. (2003). Starting at the beginning: An introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment*, 80(1), 99-103. https://doi.org/10.1207/S15327752JPA8001_18
- Tang, Y. M., Chen, P. C., Law, K. M. Y., Wu, C. H., Lau, Y., Guan, J., He, D., & Ho, D. T. S. (2021). Comparative analysis of student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector. *Computers & Education*, 168. <https://doi.org/10.1016/j.compedu.2021.104211>
- Torales, J., O'Higgins, M., Castaldelli-Maia, J. M., & Ventriglio, A. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry*, 66(4), 317-320. <https://doi.org/10.1177%2F0020764020915212>

- VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement*, 57(6).
- Warner, D., & Choi, S. (1998). Readiness of VET clients for flexible delivery including on-line learning. Australian National Training Authority. Retrieved from <https://www.voced.edu.au/content/ngv:35337>
- Widodo, S. F. A., Wibowo, Y. E., & Wagiran, W. (2020). Online learning readiness during the COVID-19 pandemic. *Journal of Physics: Conference Series*, 1700.
- Wilson, S. Z. (2006). Field education: Linking self-efficacy theory and the strengths perspective. *Journal of Baccalaureate Social Work*, 12(1), 261-274. <https://doi.org/10.18084/1084-7219.12.1.261>
- Zembylas, M. (2008). Adult learners' emotions in online learning. *Distance Education*, 29(1), 71-87. <https://doi.org/10.1080/01587910802004852>