FROM ACCESS TO EQUITY:

STUDENT AND INSTRUCTOR PERSPECTIVES OF ITV INSTRUCTION

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By

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

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STUDENT AND INSTRUCTOR PERSPECTIVES OF ITV INSTRUCTION

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a candidate for the degree of Doctor of Education,

and hereby certify that, in their opinion, it is worthy of acceptance,

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DEDICATION

To my husband Jesse and daughter Megan, thank you for believing in me. When the journey seemed too long, you never let me forget to keep moving. Your encouragement became the cadence by which I marked off each step forward. The day that I believe in my abilities the way that you both do, I will be unstoppable.

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Table of Contents

List of Tables

FROM ACCESS TO EQUITY:

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Misty Chisum

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ABSTRACT

This mixed-methods grounded theory study examined student and faculty perceptions of engagement in Interactive Television (ITV) courses. The quantitative data included a Qualtrics survey comprised of both quantitative and open-ended questions. Survey participants consisted of students (n = 442) and faculty (n = 99) with previous ITV experience. Quantitative data were analyzed using principal axis factor analysis, Independent t-test, and ANOVA. Qualitative data consisted of student personal interviews (n = 22), a student focus group (n = 1), faculty personal interviews (n = 10), and faculty focus groups (n = 2). Participants consisted of students and faculty at two regional higher learning institutions who had taken or taught ITV courses. Quantitative factor analysis identified three engagement themes: dialogic interaction, autonomous interaction, and interpersonal interaction. Significant differences were noted between student and faculty perceptions on all three factors. Faculty rated levels of dialogic and autonomous interaction lower than students, while students reported lower levels of interpersonal interaction. Qualitative data revealed that students attribute lower dialogic and autonomous interactions to reduced interpersonal interactions within the ITV classroom. A simple three-factor model of student engagement in quantitative analysis, became a model of three factors driven by one prominent factor—interpersonal interaction.

SECTION ONE:

INTRODUCTION TO DISSERTATION IN PRACTICE

Background

Distance education (DE) such as interactive television (ITV) "economize[s] on teaching resources and subject matter expertise by distributing live lectures [. . .] to many 'television classrooms' or remote sites across a university campus or other satellite locales" (Bernard et al., 2004, p. 386). In this mode of instruction, instructors are broadcast from a home site to multiple other campus locations. Students at the remote sites can see and hear the instructor and students from other sites via a television at the front of the classroom. To speak, students must activate a microphone. Instructors may share content such as presentations, overhead projections, and web screen views with all sites. This synchronous platform allows a greater number of students access to higher education courses (Lee, 2017) .

At two Midwestern institutions, Turnrow University and Greenfield Community College (both pseudonyms), ITV technology is used to provide access to classroom instruction for rural students in some of the region's most economically challenged areas. At the state level, individuals 25 or older attain bachelor's degrees at a rate of 18.08%; however, in the three southern-most counties served by these institutions, that rate is 3.6-6.6% (US Bureau of Labor Statistics, 2017). Though this study does not focus specifically on the reasons for this wide disparity in educational attainment, economic disparity resulting in reduced access to educational opportunity is a key factor. Many of these rural students are limited by the "silo mentality that ignores the impact of poverty on educational success" (Mirror, 2014, p. 6). With the creation of regional campus sites in these rural areas, students gained greater access to educational opportunities through a

heavy reliance on ITV instruction. In addition to providing access, as a single-source dedicated channel, the ITV platform has helped to address the digital poverty dynamic present in this region.

During the spring 2017 semester (per Turnrow university enrollment data provided by the university research center), 75.9% of all course sections taught at the regional campus sites were delivered using ITV technology. In addition, Turnrow has seen a recent increase in the number of ITV sections being offered to students who attend primarily at the main campus. As reported by the research center, ITV course offerings on the main campus increased from 36 in the fall 2016 semester to 56 in the fall 2017 semester. This emphasis of access is congruent with what researchers have observed when examining the history of DE; however, they have also noted that the shift in focus should move away from considering access as the central focus to appropriately balancing access and quality (Garrison, 1989; Garrison & Shale, 1990; Thompson, 1990).

The emphasis universities (and subsequently researchers) have placed on accessibility through 2nd generation technologies such as ITV has shifted to an intense focus on 3rd generation platforms such as online learning (Garrison, 1989; Lee, 2017). The danger in this shift lies in the fact that research on earlier generation technology like ITV, which is still essential to providing educational access for rural students, has fallen away. Previous studies have noted student reports of the disadvantage of limited personal interaction between the instructor and the students (Garrison, 1989; Perez, 2001). This means that the ITV instructor must be willing to examine and modify pedagogy to facilitate more interaction and subsequent engagement in the ITV classroom. As Garrison (1989) claims “constructing and validating knowledge requires a responsible

learner and a 'critical' (in its best sense) teacher" (p. 16). A sustained interest in ITV research is vital to ensuring that students have access to an equitable higher education experience.

Statement of the Problem

This research explores student and faculty perceptions of student/instructor engagement within the ITV classroom. This study focuses on three levels of engagement: dialogic, autonomous, and interpersonal.

Problem of Practice

The technology to deliver ITV courses has improved; however, more insight is needed to develop and enhance best practices for engagement in the classroom. Currently, research attention has been diverted to later generation technologies, leaving a gap in the literature regarding how to best balance access with quality in ITV instruction. Instructors know that they are supposed to provide a quality educational experience regardless of the course delivery method. At the regional campus locations, where ITV instruction is often the bulk of course offerings, consideration must be given to whether current levels of interaction and engagement meet those objectives.

Existing Gap in the Literature

The results of prior DE studies are mixed and contradictory regarding retention, achievement, and attitudes as evidenced by the research of Bernard et al. (2004). In the literature, the focus is largely on the effect of the media, not on the effect of instructional pedagogy. A gap in the literature remains in part because of what Clark (1994) describes as researchers' tendency to become enamored of the new technology instead of looking at sound instructional practice within an already established medium. Garrison (1989)

supports this assertion by discussing the failure of many to understand that "distance education is, in the final analysis, education […], the only difference [being] that the majority of communications between teacher and student is mediated" (p. 9).

Distance education research often focuses largely on a comparative model of traditional face-to-face courses versus distance education courses, seeking to determine which method of instruction is better. Considering the variability in opinion regarding what makes for a "good" educational experience, it is difficult to establish the research criteria (Bernard et al., 2004; Diaz, 2000). This study will seek to expand upon this type of comparative methodology in favor of focusing specifically on engagement within the ITV platform.

We still know very little about how students and faculty perceive the quality of engagement within the ITV setting and few studies exist to address best practices. At the Turnrow University regional sites, greater than three-fourths of instruction occurs using the ITV platform. Therefore, it is essential that possible barriers to engagement be identified and discussions begin regarding improving those factors. Access is just the first step and will not ensure student success. If we are utilizing the technology to such an extent, we must be willing to examine the central question: To what effect?

Purpose of the Study

This research explores student and instructor perceptions of ITV instruction to gain insight into the specific ways in which ITV may create barriers to engagement. If present, these barriers may adversely affect the learning process and hinder the development of the students' relationships with their instructors. Since positive instructor/student interaction is essential to student progress (Bernard et al., 2004; Royal

and Bradley, 2005), this study examines how students and faculty perceive some components of transactional distance, or the gaps in communication and understanding that may occur between instructors and students in distance education settings (Moore, 1993). Though the theory of transactional distance emphasizes three components, this study focuses on two, dialogue and autonomy. The third component, structure, was not examined as a factor in this study because the appropriate level of structure is often dependent upon type of course (Moore and Kearsley, 2005). Because of the diversity in required structure between areas of study, survey respondents and interviewees were asked to focus on the ITV platform as a whole and not on one specific course.

A qualitative analysis was conducted to further explore the experiences of students and faculty within the ITV classroom. Student and faculty interviewees were asked to share their perceptions of dialogue, autonomy, and student/faculty interactions. It is certainly true that the ITV platform increases educational opportunities in geographical areas where such access was previously limited. However, access is only the first step in providing a robust educational experience. For a full understanding of the nature of any human interaction, it is important to take into account the perspectives of all stakeholders. A mixed-methods approach using multiple data types helps to address the "complexity and sometimes inconsistency of human behavior, the multilayered nature of environments that influence it, and the interaction between the two" (Creamer, 2018).

This study also examined a third component of engagement—student and faculty perception of social connectedness through interpersonal interaction. Specifically, the research sought to determine the effect, if any, of transactional distance on student and faculty perceptions of social connectedness, namely the sense of belonging and

interpersonal relationships between students at different sites and between students and instructors (Rovai, 2002). Social connectedness is integral to student success and retention (Allen et al., 2008; Irani, Barbour, Slough, & Rieger, 2014; Tinto, 1993; 1998; 2006); therefore, this study examined to what extent faculty and student perceptions of social connectedness in the ITV setting align.

Research Questions

The research questions guiding this study include the following:

- How do students perceive the level of dialogic interaction in ITV courses?
- How do instructors perceive the level of dialogic interaction in ITV courses?
- How do students perceive the level of learner autonomy in ITV courses?
- How do instructors perceive the level of learner autonomy in ITV courses?
- How do students perceive the level of social connectedness in ITV courses?
- How do instructors perceive the level of social connectedness in ITV courses?
- How might dialogic interaction, learner autonomy, and social connectedness be enhanced in ITV courses?

Conceptual/Theoretical Framework

Interactive television, as a distance education platform, poses specific challenges in bridging transactional distance as defined by Michael G. Moore. Transactional distance, the framework on which this study is loosely based, is defined as "the gap of understanding and communication between the teachers and learners caused by

geographic distance that must be bridged through distinctive procedures in instructional design and the facilitation of interaction" (Moore & Kearsley, 2005, p. 223). The components of transactional distance reach beyond simple geography to include structure, dialogue, and learner autonomy (Moore, 1993).

The structural component of Moore's theory posits that students operating in a tightly structured environment with limited dialogue will be required to exhibit greater levels of autonomy to achieve successful outcomes. The level of learner autonomy required is directly related to the levels of structure and dialogue in a course. Structure affects dialogue and dialogue affects autonomy. Teachers who are new to ITV instruction may over-structure their class time, resulting in decreased dialogue and increased transactional distance (Moore, 1993). To facilitate best practices, it is essential to understand how the components of transactional distance are interacting within the ITV classroom.

The dialogic component of the Theory of Transactional Distance asserts that interactions must be "purposeful, constructive, and valued by each party" (Moore, 1993, p. 24). Each participant in the interaction must be not only a respectful listener, but also a contributor to the dialogue. Even in synchronous platforms like ITV where, in theory, dialogic interactions should be free-flowing and unimpeded, this flow may be hindered by instructors who do not know how to encourage it or students who are unable or unwilling to engage. In other words, providing the technology to facilitate these exchanges does not mean that they will occur. What is certain within this theoretical framework, however, is that "one of the major determinants of the extent to which the transactional distance will be overcome is whether dialogue between learners and

instructors is possible and the extent to which it is achieved" (Moore, 1993, p. 26). The ITV platform certainly allows for the possibility of dialogue; however, this study will examine whether students and faculty perceive that such dialogue is actually occurring.

Autonomy can be defined as the extent to which the student is in control of the learning experience. This relates specifically to a student's decision to key the microphone and speak in the class or to ask questions and/or debate topics. In other words, in this study, autonomy will be examined from the perspective of the student's own contributions to the learning process and his or her willingness to engage with the learning environment, to include other students and the instructor.

Design of the Study

This study is an explanatory sequential mixed methods grounded theory (MM-GT) study in which the quantitative portion was completed first and the qualitative portion was utilized to gain a better understanding of any emerging themes the quantitative portion revealed (Merriam & Tisdell, 2016).

Quantitative

Setting

The quantitative portion of this study was conducted on the main and regional campus locations of Turnrow University and Greenfield Community College, both moderately sized Midwestern institutions. These institutions were chosen for participation due to their shared mission of providing educational access to the region's largely rural, underserved populations. During the spring 2018 semester, Turnrow University and Greenfield Community College reported total undergraduate enrollment numbers (main campus and regional sites) of 9,348 students and 3,124 respectively.

Participants

Surveys were sent to the entire undergraduate student population of both institutions. To complete the survey, participants were limited to undergraduate students over the age of 18 who were currently enrolled in or who had been previously enrolled in at least one ITV course. Student participation in the survey was optional and students were informed of this through the informed consent provided at the time of the survey (Creswell, 2014).

Surveys were also sent to the entire faculty population of both institutions. Once the informed consent was acknowledged, faculty were asked whether they had ever taught an ITV course. Those who affirmed prior experience with ITV instruction were allowed to progress through the survey. All student and faculty participants who elected to participate were entered into a raffle for one (1) of eight (8) $25.00 Amazon gift cards.

Data Collection Tools

The student participants completed an online cross-sectional Qualtrics survey beginning with items assessing demographics and then progressing to items assessing their perceptions of the ITV platform utilizing a 5-point Likert scale. To assure respondent anonymity, students were not asked to provide identifying demographic information (Creswell, 2014). Demographic questions were limited to gender, age range, and academic status. Informed consent acknowledgement was secured prior to the respondent accessing the survey. Surveys were sent out after mid-term reporting so that freshman and other respondents enrolled in their first ITV course would have the opportunity to gain experience in the ITV classroom. This timing was strategic so that

students who were taking ITV courses for the first time would have adequate experience on which to base their responses.

The faculty participants completed an online Qualtrics survey mirroring the questions asked in the student survey. Questions were modified to focus on the instructor perspective. Since the faculty population was much smaller than the student population, demographics were limited to a single question regarding level of experience with ITV instruction. Respondents were provided the informed consent at the beginning of the online survey before the survey items were displayed.

As Salant and Dillman (1994) suggest, follow-up reminders were sent to the student and faculty populations approximately one week after the survey dissemination. Three weeks after the survey was initially sent out, a final correspondence was sent to all non-respondents (Creswell, 2014).

Data Analysis

Quantitative analysis of survey data was performed using IBM SPSS software. An exploratory factor analysis was conducted on the student and faculty survey data to assess the underlying dimensions of the ITV Perspectives Survey. Themes were identified via this factor analysis. From the student and faculty factor analysis results, a multivariate factor structure emerged between the two data sets. A Cronbach's alpha was run on the questions identified in each theme to understand whether the questions in the survey all reliably measured the same latent variables (e.g., "dialogic," "autonomous," and "interpersonal"; Creswell, 2014). A one-sample *t*-test was performed on the identified themes to compare variable means to the midpoint of the overall response

scale. Finally, an ANOVA was conducted to determine whether there was a significant difference between student and faculty responses to each factor.

Qualitative

The very nature of a study dealing with individual perspectives lends itself to the qualitative approach. At the heart of this study lies the very consideration that underpins all qualitative research: How can we best "understand the meaning people have constructed; that is, how people make sense of their world and the experiences they have in the world?" (Merriam & Tisdell, 2016, p. 15). This study utilized a grounded theory approach in that data were analyzed using the constant comparative method to identify patterns in the data (Merriam & Tisdell, 2016). Focus groups in addition to personal interviews were included to allow [participants] to "share their views, hear the views of others, and perhaps refine their own views in light of what they have heard" (Merriam & Tisdell, 2016, p. 114).

Setting

The setting for the qualitative portion of this study mirrored the setting described above in the quantitative section. Focus group and interview participants were selected from those students and faculty who have taken or taught ITV classes at Turnrow University and Greenfield Community College.

Participants

In the student qualitative portion, nine personal interviews were conducted at Turnrow University. A student focus group consisting of five student participants in addition to three personal interviews were conducted at Greenfield Community College.

The researcher was careful to include students from the main and regional campus locations.

Faculty focus groups were conducted at both institutions, consisting of six faculty participants at each location. In addition to these focus groups, ten faculty personal interviews were conducted at Turnrow University. The faculty participants spanned 16 different fields of academic study with primary teaching responsibilities at both main campus and regional campus sites.

At the end of the ITV survey, respondents were asked if they would be willing to participate in further research via either personal interview or focus group. Respondents who marked yes, were redirected to a separate page allowing them to provide a contact email. Interview sample size was determined with redundancy being the primary consideration; when no new information emerged, saturation had been reached (Merriam & Tisdell, 2016).

Data Collection Tools

Focus group and interview questions were semi-structured and constructed based on themes identified in the student and faculty survey data. The faculty focus group and student focus group consisted of 13 open-ended questions each, though the goal was to allow for free-flowing conversation, or what Dexter (1970) termed a "conversation with a purpose" (Merriam & Tisdell, 2016, p. 108).

Institutional Review Board (IRB) approval for the quantitative and qualitative portions was received by the researcher's supporting institution as well as the IRB authorities at Turnrow University and Greenfield Community College.

Data Analysis

Because of the emergent nature of qualitative inquiry, data from both the quantitative and qualitative portions were analyzed as they were obtained, and the results of earlier data informed choices made about later data collection. Merriam and Tisdell (2016) encourage this approach and warn that failing to utilize it can result in "unfocused, repetitious, and overwhelming" results (p. 197). At each stage, field notes and transcripts were read and coded to look for prevalent themes and categories. The use of this type of open coding is valuable in grounded theory research when the goal is to isolate themes within the data (Strauss & Corbin, 1990). To ensure inter-coder reliability, qualitative data was coded by three readers, the researcher and two assistants. The results of this coding were referenced when analyzing the next set of transcripts to determine if similar categories or themes arose. When all transcripts had been coded, evidence for each theme was sorted into its appropriate category.

Limitations, Assumptions, and Design Controls

Because this study focuses on a limited number of sites, generalizability of the findings to higher education institutions not examined in the study is limited to those institutions that serve a similar population. In addition, it is not possible to determine the participation rate of ITV students and instructors. The survey was sent to the total population with only those with ITV experience being allowed to continue the survey. Therefore, there is no way to determine how many students and faculty with ITV experience opted to not take the survey.

As with any study, certain assumptions are present. It is expected that participants in both the quantitative and qualitative segments were honest and

forthcoming when discussing their perceptions. Certain design controls were implemented. Anonymity was maintained during the quantitative portion of the study, and qualitative data were reported using pseudonyms. Informed consent was provided during the quantitative and qualitative portions of the study, and participants were made aware that participation was voluntary and that they could withdraw from the study at any time.

Definitions of Key Terms

Distance Education

As new technologies have emerged, the definition of distance education has continued to evolve to include them. The term 'distance education' has become a generic term to denote the use of media or technology to unite the instructor and students in time and space (Miliszewska, 2009).

Interactive Television (ITV)

Interactive Television (ITV) is a distance education instructional modality whereby synchronous live lectures may be distributed to remote sites/satellite locations.

Home Site

At the home site, the instructor is physically present. Students at the home site are not separated from the instructor geographically.

Remote Sites or Satellite Locales

At remote sites/satellite locales, students are geographically distant from the instructor during the class session. They see the instructor, students at the home site, and students at other remote sites via television monitors.

Rural

As outlined by the National Center for Education Statistics (2006), the term 'rural' is applied to schools that fit the following three census-defined sub-categories: (1) fringe: less than or equal to 5 miles from an urban area of 50,000 population or less than 2.5 miles from an urban cluster of 2,5000-50,000 population , (2) distant: more than 5 miles but less than or equal to 25 miles from an urban area, of 50,000 population or more than 2.5 miles but less than 10 miles from and urban cluster of 2,500-50,000 population, and (3) remote: more than 25 miles from an urban area of 50,000 population and more than 10 miles from an urban cluster of 2,500-50,000 population.

Synchronous Instruction

In synchronous instruction, the instructor and students are present at the same time (in "real time") but in different locations. Synchronous instruction requires active, simultaneous participation from instructors and students (Miliszewska, 2009).

Asynchronous Instruction

In asynchronous instruction, the teacher and students are separated in both time and location (Miliszewska, 2009).

Teach Back

In a teach back, the instructor travels from the original home site to one of the remote/satellite locations to teach a single class session.

Transactional Distance

"The gap of understanding and communication between the teachers and learners caused by geographic distance that must be bridged through distinctive procedures in instructional design and facilitation of interaction" (Moore & Kearsley, 2005, p. 223).

Social Connectedness

The extent to which students feel fully integrated into the learning experience. Within the classroom setting, this integration occurs between the student and instructor and the student and fellow classmates. A sense of belonging through social connection "increases students' positive behavioral, psychological, and social outcomes" (Battistich, Solomon, Watson, & Schaps, 1997).

Significance of the Study

Scholarship

A need exists for the development of strategies that facilitate active engagement in class discussion and/or learning activities within the ITV classroom. One-sided engagement can hinder learning, particularly if what Cobb (1997) asserts is true. He establishes that regardless of the medium type, what the student chooses to do with the medium is more important than what the instructor does with it. Students, therefore, are responsible, at least in part, for their own level of engagement. However, that does not mean that instructors should approach the issue with a sense of helplessness. This study examined the issue of transactional distance in the ITV setting with both a quantitative and qualitative lens. A mixed methods approach identified misalignment between student and faculty perceptions of engagement in the ITV classroom. Recognizing these divergent perceptions may assist instructors in implementing best practices to enhance overall engagement.

Practice

Best practices are needed to overcome the barrier of the one-directional engagement of ITV instruction. Students with lower autonomy require much more

dialogue (Moore, 1993). Efforts should be made to enhance dialogue when learner autonomy is reported as low. This information, though only broadly generalizable, may offer a greater insight into the disconnect between student and faculty perceptions of engagement in the ITV classroom. As a mixed methods study which seeks to focus on specific components of the learning process within the ITV classroom instead of a general view of student satisfaction, this study may address the gap in current literature.

Summary

This study examined student and faculty perceptions of engagement in the ITV classroom through a mixed methods approach. The quantitative portions of this study assessed whether a disconnect exists between student and faculty perceptions of the engagement in ITV courses as assessed through three factors: the level of two-way communication taking place in the course (dialogic variable), student willingness to voluntarily engage during class sessions (autonomous variable), and the level of interpersonal interactions present. The qualitative portion of this study sought to coax forth answers to the "why" questions that often remain after a quantitative examination. This study seeks to stress the importance of a continued focus on earlier generation technologies (in this case ITV) if they are going to continue to be the platforms from which many geographically remote students receive instruction. Otherwise, how can we assure that access is indeed equity?

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SECTION TWO:

PRACTITIONER SETTING FOR THE STUDY

Introduction

Turnrow University, a moderately-selective, public, four-year institution, now services over 25 counties including both rural and urban areas. Although 82% of Turnrow students are in-state students, almost all 50 states are represented within the student body. Additionally, international populations comprise 6% of the total student population with 65 countries represented. The student-to-faculty ratio is 20-to-1. In fall 2018, total student enrollment was 10,041 though the university is largely a commuter campus with a residential study body of approximately 2,610 students (Turnrow, 2018). In addition to courses offered on the main and regional campus locations, the university also offers robust online course offerings and dual credit courses for regional high school students.

Greenfield Community College, a public, two-year, open-enrollment institution, serves students from the region's southern-most counties. In spring 2018, total student enrollment was 3,124. In addition to main campus course offerings, area students can take advantage of educational access at five external locations, online, and through dual credit offerings at regional high schools (Greenfield, 2018).

History of Organizations

Turnrow University

Turnrow University opened its doors for the first time in 1873 as a teacher's college. The mission of the organization at the time was to provide teacher education training for regional school districts. Turnrow became a college in 1919 and began granting degrees. In 1972, Turnrow State College became Turnrow University (Turnrow, 2014).

Greenfield Community College

Greenfield Community College began providing educational access to the southern portion of the state in 1967 after taxation was approved by the voters of four counties in 1966. Since that time, the institution has expanded from offering courses in store shop fronts to reaching students in face-to-face formats and through many DE platforms such as ITV and online (Greenfield, 2018).

Organizational Analysis

Turnrow University

Turnrow University is a regional university with global vision. A focus on both teaching and scholarship benefits students by providing a "general education with a global perspective" (Turnrow University, 2014). It is the university's mission to create life-long learners who can become participants in the global community while also contributing socially, culturally, and economically to the region, state, and nation. The university's strategic vision also focuses on both the global and the regional aspects of the university through the goal of becoming *University of First Choice* for the region. To accomplish this objective, the university will serve the cultural, social, and academic needs of the region (Turnrow University, 2014).

Greenfield Community College

Greenfield Community College emphasizes providing access and opportunity to the communities it serves. The institution seeks to achieve this by "inspir[ing], prepar[ing], and empower[ing] students to succeed through open access to high-quality learning opportunities" (Greenfield, 2018). Through emphasizing community learning and student-first focus, Greenfield Community College aims to provide the means for area students

learn and succeed (Greenfield, 2018). The institution focuses on six commitment areas in support of its mission: (1) open access to educational programs, (2) comprehensive academic services for diverse student populations, (3) support services, (4) collaborative partnerships, (5) lifelong learning opportunities, and (6) community services with a regional emphasis (Greenfield, 2018).

Leadership Analysis

Turnrow University

A six-member Board of Regents is appointed by the Governor to serve six-year terms. All institutional policies, budgets, and new programs must be approved by this board (Turnrow, 2014). The university president and the provost are at the apex of the structural hierarchy. The university consists of five academic colleges each with its own acting dean. Each department is led by a department chair. Two regional campus sites and one distribution location offer educational opportunities to southern counties within the region. At these sites, faculty members are subordinate to their department chairs. The regional campus sites operate under a single regional campus dean. (Turnrow, 2018).

Greenfield Community College

Greenfield Community College administration consists of a nine-member Board of Trustees, with the college president at the helm. Seven of these members also serve on the College Cabinet. This body is in charge of providing input and assisting with decision-making as the institution seeks to meet its mission. The college consists of four academic colleges headed by college chairs under the guidance of the Dean of

Instruction. Each satellite locale operates under a director specific to that location (Greenfield, 2018).

Implications for Research in the Practitioner Setting

In this practitioner setting, an examination of current ITV practices is needed. Through this examination, it may be possible to further facilitate active engagement within the ITV classroom. This study does not take a myopic view of the issue, however. It will seek to examine faculty and student perceptions of transactional distance and student connectedness. Examining both faculty and student perspectives will allow the university to fully address any misalignment identified in the study. As the literature review exhibits, positive learning outcomes require the teacher and learner to both be actively engaged in the process. Examining only one side of this perspective would have limited the ways in which the study could be used to develop best practices in ITV instruction.

Summary

Turnrow University and Greenfield Community College utilize ITV to overcome geographical barriers to educational access. This outreach is vital, particularly at the regional campus locations, as it allows these institutions to provide educational access to many students who are otherwise geographically bound. As new technologies emerge, however, it is essential that these institutions resist the temptation to focus instructional research on these emerging technologies at the expense of sustained research into ITV best practices. Providing educational access is only the first step in ensuring that these two institutions meet their combined regional mission. A thorough and sustained

examination of the ways in which we utilize the mechanism of this access, the ITV modality, is essential to student success.

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SECTION THREE:

SCHOLARLY REVIEW OF THE STUDY

Introduction

In an effort to provide educational access to a wider range of students, some institutions have opened satellite campus sites that rely heavily on distance education to reach students. Distance education technologies are particularly useful in providing access to rural students. At Turnrow University (Turnrow) and Greenfield Community College (Greenfield), students attend classes at satellite campuses. These sites help address, in part, the glaring gaps in post-secondary access which plague the service area. In this state, 21.6% of adults 25 and older have earned a Bachelor's degree while degree attainment rates in the service region are below 10% (Rural Policy Research Institute, 2006). Although multiple factors influence these glaring disparities in attainment, access to higher education has surely been one of them.

To meet this access need, Turnrow and Greenfield rely heavily on the distance education platform of interactive television (ITV). In ITV courses, students at the satellite campus sites interact with faculty and fellow students on other campuses via television technology. Students utilize a microphone to speak in class or answer faculty questions. In spring 2017, according to data provided by the university's Office of Extended Learning, 75.9% of course sections held at the three regional campus locations were delivered via ITV.

Overview

This mixed methods study will examine instructor and student perceptions of ITV instruction related to possible barriers to interaction and engagement. Through surveys, focus groups, and interviews, this study will also examine ITV instruction through the

conceptual framework of transactional distance to determine the effect, if any, of the ITV platform on students' perceptions of community and social connectedness.

Conceptual Framework

Transactional distance, as outlined by Michael G. Moore (1993), founder of the *American Journal of Distance Education*, is defined as "the gap of understanding and communication between the teachers and learners caused by geographic distance that must be bridged through distinctive procedures in instructional design and the facilitation of interaction" (Moore & Kearsley, 2005, p. 223). ITV instruction will be examined using transactional distance as the central conceptual framework; the use of this framework is warranted because ITV instruction is utilized, in many cases, to provide access to educational opportunities for those students who are geographically distant from the home campus site. Specifically, this research will examine transactional distance in the ITV classroom in relation to its three defining components: structure, learner autonomy, and dialogue (Moore, 1993).

Structural, dialogic, and autonomous components are interrelated; for instance, learner autonomy, which will be defined as the student's contributions and willingness to engage with the instructor, is directly related to the structural and dialogic components of a course. When a class is tightly structured, dialogue may decrease. This decrease in dialogue would require students to employ greater learner autonomy to be successful. Because of the geographical distance between instructors and learners in distance education, in this case ITV, some instructors will employ a tighter structure in this course, inadvertently lowering the levels of dialogue between teacher and student (Moore, 1993).

The dialogic component of transactional distance is vital for framing this research because "one of the major determinants of the extent to which the transactional distance will be overcome is whether dialogue between learners and instructors is possible and the extent to which it is achieved" (Moore, 1993, p. 26). While structure and learner autonomy influence the level of dialogue, it is the amount and quality of the dialogic interactions themselves that will determine whether the interaction between students and teachers is bi-directional and "purposeful, constructive, and valued by each party" (Moore, 1993, p. 24). Being a synchronous platform, ITV would seem to lend itself to free-flowing dialogue between the instructor and students; however, this may be impeded by instructors who are unable to encourage it and students who are unwilling to engage.

Since viewing oneself as part of a cohesive learning community is essential to student success, this research will also examine student perceptions of social connectedness and belonging in the ITV classroom utilizing the work of Tinto (1993; 1998; 2006). Moore's theory of transactional distance examines the effect of geographical distance on student interaction and engagement; Tinto's emphasis on the importance of community and fostering an inclusive environment will crystalize why bridging that distance is vital.

A Review of the Literature

Foundational Underpinnings

A discussion of distance education must first begin with an acknowledgment of what Keegan (1996) called "the fragile theoretical underpinnings" of the discipline (p. 15). He claims that there is no cohesive theory of distance education but rather a collection of partial theories that have arisen to address specific issues. With any inquiry,

one must first define terms. However, in distance education research, this proves difficult considering that the discipline is marked by "confusion over terminology and by lack of precision on what areas of education were being discussed or what was being excluded" (Keegan, 1996, p. 23). As new technologies have emerged, established definitions have been revised to include them, resulting in a shift in the meaning of distance education over time. The earliest writings on distance education dealt primarily with traditional correspondence courses where most if not all content was provided through written materials exchanged between instructors and students through the mail. In 1989, we saw the first definition of distance education that deals specifically with ITV instruction (Barker, Frisbie, & Patrick, 1989). This definition differs from earlier ones in that it focuses on synchronous interactions and declares that "the opportunity for live teacher-student exchanges in real time is possible, thereby permitting immediate response to student inquiries and comments" (Barker et al., 1989, p. 25). Though earlier works are useful in building a foundation on which to examine ITV in relation to the broader study of distance education, it is important to understand the chronological evolution of the field. When focusing on the ITV platform specifically, Keegan's (1993) definition of distance education is relevant in its focus on the "quasi-permanent separation of teacher and learner" (p. 50) that is mediated by technology to unite them. This definition also emphasizes the possibility of creating learning groups and occasional meetings to facilitate dialogue and a sense of social connectedness.

Distance education research related to this study is grounded in five primary theoretical frameworks. Though the guiding framework for this study is Moore's Theory of Transactional Distance, components of the other frameworks are present as well.

Though these frameworks differ in scope, the central focus on distance between the teacher and learner is consistent across them (Amundsen, 1993). As new technologies have emerged and the ways that teachers and learners interact have evolved, new frameworks have been developed and have been built upon to offer an ever-changing basis of inquiry. To fully understand the nature of distance education research, one must first briefly define these theories independently and then examine how they have been used concomitantly. The five foundational frameworks relevant for this literature review in distance education are as follows: (1) Moore's Theory of Transactional Distance and Learner Autonomy; (2) Holmberg's Theory of Teaching in Distance Education; (3) Keegan's Theory of Reintegration of the Teaching Acts; (4) Garrison's Theory of Communication and Learner Control; (5) and Verduin and Clark's Three-Dimensional Theory of Distance Education.

Moore's Theory of Transactional Distance declares that greater transactional distance demands that students exercise greater autonomy (Moore, 1993). The theory posits that because student success in distance platforms requires greater autonomy, such courses will automatically attract students who possess such autonomous characteristics. These autonomous learners will willingly seek out teachers' help. Studies have had mixed results regarding this assertion (Amundsen, 1993). Holmberg (1995) warns against assuming that distance students are a homogeneous group. According to Moore's theory, the interrelated components of structure, dialogue, and learner autonomy will determine how well transactional distance will be overcome in DE platforms. Though Moore's earlier works dealt primarily with asynchronous distance education, in 1993 he reprised his discussion to include telecommunications media to include ITV.

> Since the theory of Transactional Distance was written, the most important evolution in distance education has been the development of highly interactive telecommunications media. [. . .] The use has added the possibility of faster dialogue with the teacher and, by computer conferencing, more individual dialogue. [. . .] Above all, the teleconference media allow a new form of dialogue that can be called inter-learner dialogue (Moore, 1993, p. 32).

Holmberg's Theory of Teaching in Distance Education focuses on the "interpersonalization of the teaching process at a distance" (Amundsen, 1993, p. 64). Personal relationships are required for learner motivation and learning. Non-contiguous communication, which is the communication between teacher and learner when they are separated, is emphasized. Though he has altered the framework several times, Holmberg ultimately defined the Theory of Teaching in Distance Education as "relating teaching effectiveness to the impact of feelings of belonging and co-operation as well as to the actual exchange of questions, answers and arguments in mediated communication" (Holmberg, 1989, p. 163). This can be achieved through guided didactic conversation which emphasizes the relational values of education. The less experienced the student, the more guided didactic conversation is necessary (Holmberg, 1995). Moore (1989) states that this type of conversation is akin to what he calls learner-content interaction wherein learners "talk to themselves about the information and ideas they encounter in a text, television program, lecture, or elsewhere" (p. 2). Later in his work, Holmberg (1995) warns of an over-emphasis on theory to guide practice in education because of the "impossible expectation of an unfailing cause-effect relationship in human behavior" (p. 25).

Keegan's Theory of Reintegration of the Teaching and Learning Acts stresses that in distance education the link between teaching and learning must be established through planned interpersonal communications. The learning links are built into traditional education settings where the teacher and learner are not separated in time and space. Distance education programs must successfully make these learning links through reintegration (Keegan, 1993).

Garrison's Theory of Communication and Learner Control stresses the importance of interdependence between teacher and learner. This stance differs substantially from Moore's (1993) focus on learner autonomy with its premise that learning is a primarily internalized process. Garrison emphasizes two-way communication between teachers and learners; the teacher regains a central position in this theory that is less emphasized in the other theories. As technology has allowed for more synchronous interactions between teachers and learners in distance education, it is not surprising that theories would begin to include more discussion of the teacher's role in the process as Garrison's does.

In addition to the above theory, Garrison (1993) also establishes a useful framework for understanding the chronology of distance education evolution. He posits that there are three generations of technology: (1) correspondence, (2) teleconference, and (3) computer. Though Garrison admits that the technology builds upon itself and that there are many technologies that blend generations, this discussion is useful for an examination of the literature regarding ITV instruction because there is a noticeable decline in scholarship regarding this second-generation technology when third-generation computer-based technologies emerged.

Verduin and Clark's Three-Dimensional Theory of Distance Education (1991) is built on the works of Moore and Keegan though they broaden some of the tenets of these theories. For instance, Verduin and Clark utilize Moore's concept of structure with the caveat that different fields require different levels of structure. They explain that a student's level of specialized competence will help to determine the level of dialogue and student autonomy needed and warn that some courses will have various levels of specialized competence at the assignment level. They declare that specialized competence is "based largely upon the learner's expertise or lack of it, and that is usually a function of the structure of the subject matter" (p. 125). Other theories focus more on the interpersonal interactions while Verduin and Clark are the first to fully consider the influence of the learning task on distance education outcomes.

Findings

Research dealing specifically with ITV instruction is limited. Much of the discussion is grounded in distance education in general which is often marked by imprecision and generality (Moore, 1989). As stated above, this can be problematic for the researcher because the scope of a given piece of research depends on when it was written and what technology platforms were actively in use at the time. For the researcher, this ambiguity requires making theoretical and research-based connections between similar technologies. In addition, much of the research on student satisfaction is conflicting.

Regarding student and instructor perceptions of ITV courses, studies have identified a possible exposure effect. Exposure to multiple ITV courses seems to positively affect student attitudes toward the platform (Bacon & Jakovich, 2001; Wetzel,

Radtke, & Stern, 1994). Kendall and Oaks (1992) found similar results when evaluating faculty attitudes toward ITV; faculty with experience teaching ITV report more positive attitudes toward it than faculty who lack experience teaching these classes. Lyons, MacBrayne, and Johnson (1994) attribute this tendency to students' and teachers' increased comfort levels with the technology. However, this positive attitude toward the platform does not translate to students' positive attitudes toward teacher effectiveness; with other variables held constant, students tend to rate teacher effectiveness as lower in ITV classes than in face-to-face classes (Anderson & Kent, 2002). Anderson (2000) posits that students in ITV classes are unable to differentiate their attitude regarding the ITV platform from teacher effectiveness. This may explain, in part, the lower ratings for teacher effectiveness seen in ITV classes despite controlling for other variables. It is important to note, however, that earlier studies by Silvernail and Johnson (1990; 1992) found that students are capable of differentiating the effectiveness of the ITV platform from instructor effectiveness, a tendency that Anderson, Banks, and Leary (2002) attribute to the "halo" effect, "the tendency for a respondent's perception of one facet of a situation to influence his or her perception of other, unrelated aspects of the situation" (p. 167).

Though many studies have focused on student achievement in ITV courses using a comparison model with traditional classroom settings, others have emphasized the importance of focusing on student satisfaction as a prerequisite for that achievement (Biner, Dean, & Mellinger, 1994; Ritchie & Newby, 1989). The comparison model has frequently been used to determine whether students are more satisfied with face-to-face courses or with ITV courses, though some researchers question the logic of comparing

traditional classroom settings to distance education because they are different theoretically and methodologically (Royal & Bradley, 2005).

As is the case with much distance education research, the results are mixed; however, many studies indicate that in ratings of overall course satisfaction, face-to-face students report greater levels of satisfaction (Anderson, 2000; Clow, 1999; Egan, Welch, Page, & Sebastian, 1992). Other research, however, seems to support the idea that students at remote sites (those who are not in the same room as the ITV instructor) report greater satisfaction with the ITV platform and are generally more understanding than students who attend at the host site (Wheeler & Batchelder, 1996; Zarghami, 1998). Thomerson and Smith (1996) assert that remote students may be more forgiving of the innate problems of the ITV classroom because they perceive that they are gaining from having access to the technology while students at the host sites do not. Host-site students saw the platform as "unnecessary, unproductive, and burdensome" while the remote-site students acknowledged it as a necessary tool for educational access (Anderson et al., 2002, p. 165).

Studies have also examined students' sense of connectedness and belonging in ITV courses. Kochman (1998) discusses the increased sense of disconnection that students at remote sites may experience. This finding echoes an earlier qualitative study by Wheeler and Batchelder (1996), which found that students and faculty both acknowledge that communication and interaction are problematic at times in ITV classes. Specifically, students cited the following as barriers to instructional intimacy: (1) limited student-instructor interaction, (2) feedback delays, and (3) faculty inability to notice students' verbal and nonverbal cues (Anderson et al., 2002). Though empirical studies on

faculty perspectives are limited, studies do indicate that faculty are less enthusiastic when teaching ITV courses. The reasons given for this difference include the greater workload required of ITV instructors, technological malfunctions, and limited student-instructor interactions (Anderson & Kent, 2002). Though ITV courses are seen as a means of mediating the impersonal nature of distance education, "even the most 'friendly' interface over ITV cannot substitute for personal contact" (p. 71). If, as a study by Perez (2001) finds, students see a lack of personal interaction with the instructor as the primary disadvantage of distance education, we must begin to foster those interactions in a productive way.

Social Connectedness and Belonging

Social connectedness denotes a sense of belonging that results in stronger interpersonal relationships (Rovai, 2002). This connection is vital to increasing student success and to fostering an inclusive environment. Tinto (1993; 1998; 2006) stressed the importance of learning communities in fostering student persistence. His research promotes the importance of fostering a sense of community among the various levels of educational stakeholders—students, faculty, and staff. Mendoza, Suarez, and Bustamante (2016) recently examined the importance of a sense of community at a Colombian technical institute. Their findings echoed Tinto's call for greater community building; they discovered that students who lack a sense of community are at an increased risk of leaving the institution. Dae Shik, Lee, and Skellinger (2012) found that students at off-campus sites expressed dissatisfaction with the level of faculty-student and student-student interaction. In light of the connection between student persistence and sense of belonging, these student perspectives must be considered. In distance education

platforms like ITV courses, mitigating the transactional distance between faculty and students and between the students attending at various sites is essential to the community building required for a truly inclusive learning environment.

Universities must encourage connectedness and seek to avoid allowing a sense of social isolation to develop within off-campus student populations. Coleman's (1988) Social Capital Theory established that groups built on trust and a sense of belonging achieved through relational connection would be much stronger. Recent studies have confirmed that a direct link exists between social connectedness and student retention (Allen et al., 2008; Irani et al., 2014). Attention to these concepts is vital in any course; however, when transactional distance is enhanced as it is in distance education platforms, instructors must often overcome barriers not found in face-to-face courses.

Best Practices

Though there is little doubt regarding the importance of positive instructor-student interactions, it is an oversimplification to encourage interaction for the sake of interaction alone. According to Simonson et al. (2003), "interaction is not 'end all and be all' of learning [. . .] the forcing of interaction can be as strong a detriment to effective learning as is its absence" (p. 78). An earlier work by Fulford and Zhang (1993) asserts that student perceptions of the level of interaction is what really matters. They posit that instructors can increase this perception through group work instead of a focus on interactions with each student on an individual basis.

In addition, emphasis should be placed on ensuring that ITV instructors have adequate content knowledge before being asked to teach an ITV course. Emphasis on pedagogy will not be enough to mitigate a deficit of content knowledge in an educational

setting that is already complicated by multiple other factors (distance, technology, etc.) (Simonson et al., 2003). As for pedagogy, however, instructors should be willing to move beyond the common lecture method often used in face-to-face courses. Consideration should be given to basing courses around learning activities and enhancing courses with web materials. Addition of online opportunities for student-student and student-instructor interaction is beneficial (Gunawardena, 1992; Hegge, 1993).

Instructors must be adequately trained in ITV teaching technique if they are to be expected to effectively blend content knowledge and pedagogical knowledge. This training should include instruction on how to use all equipment within the context of a typical class, such as turning on the equipment and smoothly switching the camera view between student, instructor, and content views as needed. Instructors may also need training in adapting lesson plans to better fit the ITV platform (Anderson & Kent, 2002). In addition, instructors should be encouraged to travel to remote sites if possible so that all students in a course have some face-to-face contact with the instructor (Wheeler & Batchelder, 1996).

Lastly, instructors should provide opportunities for the three types of interactions as outlined by Moore (1989): (1) learner-instructor, (2) learner-content, and (3) learner-learner. He refers to this as "the division of labor in teaching" (p. 5). More than one medium is often necessary to address the three types of interactions.

Summary

As is evidenced by the dates of the research studies cited in this review, current studies into the ITV platform are limited. ITV technology, which would fall into Garrison's second generation of instructional technology, has now been surpassed by

third-generation technologies. A short search of resources into the third-generation technologies reveals a thriving and robust field of inquiry. Though it makes sense to study the new technologies as they emerge, it would be wise to continue to study technologies like ITV that are still so widely used. This technology offers educational access to students who otherwise would have limited opportunities to pursue degrees. As mentioned above, regional campus sites provide three-fourths of courses through ITV technology. Though research supports that ITV students are forgiving of the platform because they are grateful to have the access, we owe it to them to continue to pursue the knowledge required to provide an equitable classroom experience despite the distance.

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SECTION FOUR:

CONTRIBUTION TO PRACTICE

White Paper for University Best Practices

Presented to Turnrow University and Greenfield Community College

At institutions with rural outreach, including Turnrow University and Greenfield Community College, ITV technology is widely utilized to provide educational access to students who would otherwise lack it. In rural communities, many students are geographically bound, resulting in an inability to attend classes at main campus locations. Through the use of ITV technology, instructors and students are able to bridge these geographical barriers. Turnrow University and Greenfield Community College provide this vital educational access to a region of the state that is hard hit by poverty and lack of educational opportunity. These two institutions, boasting a regional focus, seek to support and revitalize the shared community they serve.

Though the ITV platform provides essential educational access to the region's rural students, care must be taken to ensure that research continues into the best practices of the modality. Accessibility is still a primary focus; however, the general research into distance education has shifted from 2nd generation technologies such as ITV to online platforms (Garrison, 1989; Lee, 2017). To address the tendency of abandoning one form of still-relevant technology for the next, we must continue to explore new technologies while still investing in research into ITV best practices. Providing students access to educational opportunity is only the beginning; we must take the steps necessary to ensure that the time spent in the ITV classroom is as enriching as possible.

Positive instructor/student interaction is vital to student success regardless of the learning modality concerned (Bernard et al., 2004; Royal & Bradley, 2005). Therefore, this study focuses on instructor and student perspectives of levels of engagement--

dialogue, autonomy, and social connectedness through interpersonal interaction. Through a mixed methods approach, this study examined the level of alignment between student and faculty perceptions of these engagement factors.

Conceptual Framework

This study was broadly based on Moore's Theory of Transactional Distance, which examines the effect of geographic distance on understanding and communication between teachers and learners. Overcoming this transactional distance requires attention to instructional design and an emphasis on interaction (Moore & Kearsley, 2005). Moore (1993) focused largely on three components of transactional distance—structure, dialogue, and learner autonomy. These interrelated components of structure, dialogue, and learner autonomy will, according to Moore's theory, determine how well transactional distance will be mediated.

Utilizing the work of Tinto (1993; 1998; 2006), this study also examined student and faculty perceptions of social connectedness in the ITV classroom. Student success is enhanced by the creation of a cohesive learning environment that fosters social connectedness through a sense of belonging (Rovai, 2002). Understanding the perceived transactional distance between stakeholders in a synchronous educational platform like ITV is vital if we are to traverse the theoretical distance that overcoming geographical distance can create.

Review of Literature

Foundational Underpinnings

Keegan (1996) aptly discussed distance education's "fragile theoretical underpinnings" (p. 15). The discipline, which he termed a collection of partial theories

developed in response to specific issues, lacks the cohesiveness of other areas of educational research. Defining terms in distance education research proves difficult and ever-shifting as new technologies emerge. From the earliest writings on distance education dealing primarily with traditional correspondence courses to the first mention of ITV in 1989, it is important to understand the chronological evolution of the field (Barker, Frisbie, & Patrick, 1989). However, when seeking a functional definition of distance education relating to the ITV platform, Keegan's (1993) definition of the "quasi-permanent separation of teacher and learner" (p. 50) that utilizes technology as a unifying mediator is particularly useful. As new technologies have emerged and the ways that teachers and learners interact have evolved, new frameworks have been developed and have been built upon to offer an ever-changing basis of inquiry. Though this study is influenced by several foundation frameworks, the guiding framework for this this study is Moore's Theory of Transactional Distance, which was revised in 1993 to include third-generation telecommunications technologies like ITV.

Findings

Though research into distance education as a whole is abundant, research focusing specifically on ITV instruction is limited. Researchers must pay attention to when an article was written to determine what technologies the author may be including under the scope of distance education.

Though research focusing on ITV instruction is limited, studies have outlined some general findings. Student attitudes toward the ITV platform are positively correlated with their exposure to multiple ITV courses (Bacon & Jakovich, 2001; Wetzel, Radtke, & Stern, 1994). Faculty are not immune to this exposure effect; Kendall and

Oaks (1992) found that experienced ITV faculty exhibited more positive attitudes toward the instructional platform than less experienced faculty. For both students and faculty, experience with the modality resulted in improved attitudes toward it, perhaps as a result of increased comfort levels with the technology (Lyons, MacBrayne, & Johnson, 1994).

The location of the student may also affect his or her perceptions in an ITV setting. Students at remote sites where the instructor is not physically present report greater satisfaction with the ITV platform (Wheeler & Batchelder, 1996; Zarghami, 1998). Thomerson and Smith (1996) explain this tendency as the result of the remote students' perception that they are gaining from having access to the technology and thus the educational exchange when they otherwise would not. In contrast, students attending with the instructor physically present often saw the platform as "unnecessary, unproductive, and burdensome" (Anderson et al., 2002, p. 165).

Kochman (1998) and Wheeler and Batchelder (1996) discuss the increased sense of disconnection that students at remote sites may experience due to difficulties in communication and interaction. Anderson et al. (2002) outlined three specific barriers to interaction: (1) limited student-instructor interaction, (2) feedback delays, and (3) faculty inability to notice students' verbal and nonverbal cues.

Studies examining faculty perspectives are limited; however, research indicates that faculty are less enthusiastic when teaching ITV courses possibly due to greater workload, technological malfunctions, and limited student-instructor interactions (Anderson & Kent, 2002).

Social Connectedness and Belonging

Social connectedness through fostering a sense of belonging enhances student success (Rovai, 2002). Mitigating the transactional distance between faculty and students and between the students attending at various satellite sites is essential to the community building required for a truly inclusive learning environment. Institutions of higher learning must encourage social connectedness and a sense of belonging in all students, including on-campus and off-campus student populations (Allen et al., 2008; Irani et al., 2014; Tinto, 2006).

Best Practices

Fulford and Zhang (1993) assert that student perceptions of the level of interaction are what matters. To improve these perceptions, instructors may provide greater opportunity for group work instead of focusing so intently on increasing individual teacher/student interactions. Instructors should also be encouraged to move away from lecture-based instruction and to provide web-based activities to provide opportunities for inter-learner and student-instructor interactions (Gunawardena, 1992; Hegge, 1993). These techniques should provide opportunities for the three types of interactions as outlined by Moore (1989): (1) learner-instructor, (2) learner-content, and (3) learner-learner.

Once it is certain that instructors possess adequate content knowledge, they must be adequately trained in techniques of blending content knowledge and pedagogical knowledge to include training in adapting face-to-face content for presentation in an ITV course (Anderson & Kent, 2002). Lastly, to enhance student-instructor interaction,

instructors should be encouraged to travel to remote sites to conduct a teach back session (Wheeler & Batchelder, 1996).

Research Design

Setting

The quantitative and qualitative segments of this mixed-methods grounded theory (MM-GT) study were conducted at two Midwestern institutions, Turnrow University and Greenfield Community College. These institutions provide educational access to the region's rural students through main and regional campus locations, online course offerings, and dual credit courses offered in area high schools.

Data Analysis

Survey data were assessed through quantitative analysis via IBM SPSS software. After an exploratory factor analysis was conducted, a multivariate thematic structure was identified between the student and faculty data sets. This structure's reliability was assessed using Chronbach's alpha. A one-sample *t*-test was conducted on the factors, and an ANOVA was conducted to determine if a significant difference was present between the student and faculty responses to each identified factor. The survey scale ran from one to five, with the lower numbers reflecting higher positivity.

The constant comparative method of qualitative analysis was used as faculty and student focus groups and interviews were conducted. To avoid "unfocused, repetitious, and overwhelming" results (Merriam & Tisdell, 2016), the results of the field notes and open coding were analyzed as they were completed to look for emerging themes.

Limitations, Assumptions, and Design Controls

Generalizability of this study's findings is limited to higher learning institutions that serve a similar population. To ensure a proper sampling size, surveys were sent to the entire student and faculty population of each institution. However, because only students and faculty with ITV experience could progress in the survey, there is no way to adequately determine how many of the population had experience with ITV but opted to not participate in the survey. Lastly, the researcher is currently employed at one of the participating institutions.

It was assumed that survey and interview participants provided honest and complete responses. To protect the participants' privacy, anonymity was maintained during the quantitation portion of the study and qualitative segments were coded and reported using pseudonyms.

Research Questions

The research questions guiding this study include the following:

- How do students perceive the level of dialogic interaction in ITV courses?
- How do instructors perceive the level of dialogic interaction in ITV courses?
- How do students perceive the level of learner autonomy in ITV courses?
- How do instructors perceive the level of learner autonomy in ITV courses?
- How do students perceive the level of social connectedness in ITV courses?
- How do instructors perceive the level of social connectedness in ITV courses?

- How might dialogic interaction, learner autonomy, and social connectedness be enhanced in ITV courses?

Results

A principal axis factor analysis (PFA) of student data revealed four factors with eigenvalues greater than one. However, the scree plot indicated that three components should be retained as they fell before the inflection point. This three-factor model was supported by the varimax rotated component matrix, fulfilling the interpretability criterion and exhibiting 'simple structure.' Thus, three factors were retained.

PFA of faculty data revealed four factors with eigenvalues greater than one. The scree plot and the varimax rotated component matrix supported the four-factor model of analysis for the faculty survey. However, since this study seeks to compare student and faculty perceptions, the three faculty factors that aligned with the three student factors were retained.

Dialogic Engagement (Factor 1) examines student and faculty perceptions of two-way diaglogue between students and faculty and between different campus locations in the ITV setting. Autonomous Engagement (Factor 2) examines student and faculty perceptions of students' willingness to independently engage with faculty and other students. Interpersonal Engagement (Factor 3) examines student and faculty perceptions of the level of interpersonal interaction.

A series of one-way ANOVAs was conducted to determine if there were significant differences in perception of the three ITV factors among main campus student (n = 186), regional campus student (n = 256), and faculty respondents (n =99). Follow-up independent-samples t-test was conducted on the data for each factor with a 95%

confidence interval (CI) to determine if there were differences in student and faculty perceptions in each factor. There were no statistical differences between main campus and regional campus students for Factor 1, 2, or 3 (all *p*s < .4). However, there was a statistically significant difference between main campus student and faculty responses for all three factors (all *p*s < .01) and regional campus student and faculty responses for all three factors (all *p*s < .01).

Factor 1 Dialogic Interaction. ANOVA revealed Factor 1 was significantly different among the three groups compared (main campus students, regional campus students, and faculty, Welch's $F(2, 283.668) = 10.871$, $p < .001$. Factor 1 score increased from the main campus group ($M = 3.63 \pm 0.78$) and regional campus group ($M = 3.60 \pm 0.81$) to the faculty group ($M = 3.96 \pm 0.64$). Thus, student respondents reported higher positive perceptions of factor 1 (dialogic interactions) than did faculty.

Independent samples *t*-test revealed a statistically significant difference in mean Factor 1 score between students and faculty, $t(173.600) = -4.660$, $p < .001$, with students rating this factor higher ($M = 3.61 \pm 0.798$) than faculty ($M = 3.96 \pm 0.640$), illustrating a statistically significant difference of -0.35 (95% CI, -0.50 to -0.20), $t(173.600) = -4.660$, $p < .001$.

During the interviews, both students and faculty highlighted how student expectations regarding the ITV platform hinder bi-directional dialogue. Both groups acknowledged students may enroll in ITV courses with the expectation that speaking out in class is required less frequently. Several students even shared that ITV courses are less intimidating because they are expected to talk less than in face-to-face courses.

From a pedagogical standpoint, many faculty members acknowledged an enhanced tendency toward lecture-based instruction when teaching ITV classes. The lack of instructional spontaneity was mentioned by faculty many times throughout the interviews and focus groups. Faculty expressed frustration at the inability to adapt course materials quickly and provide them to the remote sites in time for the next class. Faculty admitted that a lecture-based approach is often simply easier than other more interactive approaches. Student interviewees also noticed the privileging of lecture in ITV classes. When asked why they may be hesitant to speak in class, student interviewees mentioned the fear of interrupting the instructor during lecture.

Both faculty and students acknowledged the tendency toward one-directional dialogue in ITV courses. However, students seem more accepting of this tendency, and at times, may even consider it a positive attribute of the platform, some admitting that they take ITV courses because there are fewer dialogic interaction. Instructors, aware of the importance of the dialogic exchange to student learning, view the lack of organic, free-flowing dialogue as a major impediment. The majority of faculty and student interviewees commented on the lack of inter-campus dialogue between students, asserting that students tend to form learning communities with fellow students at their campus while rarely engaging with those at distant locations. When groups are formed, they consist of students from a single campus, thus further enforcing the divide between campus sites. A faculty interviewee noted this disconnect as well and compared it to students feeling like they are "in a classroom instead of in a class."

Factor 2 Autonomous Interaction. ANOVA analysis revealed Factor 2 was statistically significantly different for the three groups compared, $F(2,538) = 7.804$, $p <$

.001. Factor 2 score increased from the main campus group ($M = 2.86 \pm 0.89$) and regional campus group ($M = 2.88 \pm 0.95$) to the faculty group ($M = 2.94 \pm 0.92$). Thus, student respondents reported higher positive perceptions of factor 2 (autonomous interactions) than did faculty.

Independent samples *t*-test revealed a statistically significant difference in mean Factor 2 score between students and faculty, $t(539) = -3.948$, $p < .001$, with students rating this factor higher ($M = 2.87 \pm 0.93$) than faculty ($M = 3.27 \pm .81$), illustrating a statistically significant difference of -0.40 (95% CI, -0.60 to -0.20), $t(539) = -3.948$, $p < .001$.

During the interviews and focus groups, several corresponding factors emerged regarding the level of autonomous interaction present within the ITV classroom. One such area dealt with an acknowledgement of the intrinsic motivation that is required of students. The majority of faculty felt as though they were often left in the untenable position of "begging [students] to talk." Many students acknowledged the tendency toward a more passive role in ITV classes. However, the reasons for this lack of engagement autonomy were explained differently. While many faculty expressed the belief that a student's autonomous engagement is largely decided by student personality, students more often viewed failure to engage as a direct result of the lack of instructor presence. Students at both home and remote sites remarked upon a negative difference in their autonomous responses when the teacher was not physically present. They further explained that physical distance from the instructor makes it harder to pay attention, focus on the television, and avoid distractions. Once students have become disengaged

from the learning process as a whole, it is difficult for them to be in a position to autonomously engage.

Over the course of many interviews, it became clear that the lack of dialogic spontaneity critical in Factor 1 also negatively affected students' willingness to autonomously engage. A desire to avoid interrupting the instructor or other students during discussion was frequently cited as a hindrance to autonomous engagement. However, students described the level of interpersonal connection with the instructor as the primary determiner of student autonomous engagement. Therefore, in the search for greater learner autonomy in ITV courses, we must not limit our efforts by focusing solely on students' refusal to engage. We must look further into strengthening the relational dynamics that students say, in many cases, determine their level of engagement.

Factor 3: Interpersonal Interaction. ANOVA analysis revealed Factor 3 was statistically significantly different for the three groups compared, Welch's $F(2, 292.964) = 28.174$, $p < .001$. Factor 3 score decreased from the main campus group ($M = 2.63 \pm 0.93$) and regional campus group ($M = 2.72 \pm 0.90$) to the faculty group ($M = 2.10 \pm 0.66$). Thus, faculty reported higher positive perceptions of factor 3 (interpersonal interactions) than was reported by student respondents.

There was a statistically significant difference in mean Factor 3 score between students and faculty, $t(193.207) = 7.406$, $p < .001$, with students rating this factor lower ($M = 2.69 \pm 0.91$) than faculty ($M = 2.10 \pm 0.66$), illustrating a statistically significant difference of 0.59 (95%CI, 0.43 to 0.74), $t(193.207) = 7.406$, $p < .001$.

As human beings, we are driven to connect to those around us. One student explained how that desire for connection manifests itself in the classroom: "I am a

creature who craves connections. While I take my learning very seriously, college is more than just learning. It's about establishing relationships and connections." As the student later mentioned, this forging of productive relationships, instructor-student and student-student, can be challenging in ITV classes.

Students at the remote locations expressed a greater interpersonal disconnect and many declared a need for instructors to make the learning process feel more personal. One remote site student lamented that instructors "get to know [home site students] better so [. . .] it's like we're not legitimate students. We're just faceless people on the TV." Other students spoke in absolute terms regarding the role that the instructor plays in establishing relationships and providing a successful experience:

> The success of the ITV course depends almost solely on the instructor. [. . .] I've had ITV courses where the instructor sits back and never messes with moving the camera or asking questions or getting real involvement. They put all the effort on the students, thinking if they want to learn, they will. These classes are rarely successful.

Students were just as willing to discuss successful experiences in ITV classes. Again, those experiences focused not on materials, technology, or environment; the most successful experiences were a direct result of the student feeling connected to the instructor. More often than not, when student interviewees were asked to describe a positive experience the response focused on a specific instructor, not the platform or a class.

When asked about interactions among students at the various campus locations, faculty and student interviewees both acknowledged that students tend to connect with

other students at their campus locations while engaging very little with students from other campus sites. One student explained her unwillingness to speak out in class as a direct result of not knowing the other students and being hesitant to speak in front of the other campus sites. Again, dialogue and autonomous interactions are decreased by the lack of interpersonal interactions.

Student interviewees discussed the importance of instructors gaining rapport with all students as early as possible in the semester. Once students gain a sense of interpersonal connection to the instructor, that instructor will be better able to encourage greater dialogic and autonomous engagement. Thus, the student interviewees returned to the relational aspect time and again throughout the interviews. This focus was most noted when students were asked to provide suggestions for improving the ITV learning experience. While faculty spoke largely of needed changes to the technology itself such as mobile microphones and larger television screens, students expressed a greater need to connect to their instructors as people outside of the technology.

Discussion and Recommendations

Quantitative results found no statistically significant difference between main and regional campus students on any of the three factors. However, there was a statistically significant difference between student and faculty perceptions of all three factors. While it is tempting to examine the three factors of engagement (dialogic, autonomous, and interpersonal) individually, a qualitative approach revealed the dependent nature of the components.

Research questions one and two explored the dialogic component (Factor 1). ANOVA results for this factor revealed a statistically significant difference in student and

faculty perceptions of the level of dialogue in ITV courses, with students expressing a higher positive perception than faculty. The tendency toward one-directional dialogue was acknowledged by both student and faculty interview participants; however, students expressed a greater acceptance, and even at times appreciation, for this tendency, which can allow for a more passive student role in the educational exchange. Faculty, aware of the possible negative effect of one-directional interaction on learning outcomes, expressed a greater desire to enhance dialogue. Student and faculty respondents diverged in their explanation of one-directional dialogue, however. Faculty more frequently blamed technology barriers inherent to the ITV platform while students mentioned technology issues far less frequently. When asked why one-directional dialogue is prevalent, students most often cited a lack of interpersonal connection to the instructor and students at other campus locations.

Similarly, research questions three and four explored the autonomous component (Factor 2). Results indicated a statistically significant difference in student and faculty perceptions, with students once again expressing a higher positive perception than faculty. In interviews and focus groups, students and faculty both acknowledged that autonomous interaction from students is limited in ITV classes. However, student and faculty perceptions diverged regarding the reason for this. While faculty looked to technology barriers and student personality as the foremost drivers of low autonomous interaction, students attributed this phenomenon directly to a lack of instructor presence. More important than the physical presence, students directly attributed low autonomous interaction to a decreased sense of interpersonal connection between themselves and their instructors.

When examining the interpersonal components addressed in research questions five and six (Factor 3), results indicated a reversal in the direction of perspective. As with the other two factors, results indicated a statistically significant difference in student and faculty perceptions; however, on this component, students expressed a lower positive perception of the level of interpersonal interactions than did faculty. Student interviews revealed that students view the level of interpersonal connection between themselves and their instructors as a direct result of faculty efforts to establish it. Whether asked to describe a positive or negative experience in an ITV class, student responses consistently focused on the teacher's role instead of the class platform.

One student summarized what many student participants posited: "The success of the ITV course depends almost solely on the instructor." Students and faculty agreed that dialogic interaction, autonomous interaction, and interpersonal interaction can be limited in ITV courses. While students do not seem to be as troubled as faculty by lesser dialogue or decreased autonomy, they express a heightened sense of disconnect to both the instructor and students at other locations. When asked to explain their lower levels of dialogic and autonomous interaction (Factors 1 and 2), students invariably mentioned decreased interpersonal interactions (Factors 3). This assertion, coupled with the quantitative finding that faculty perceive interpersonal interactions with their students more favorably than students do, offers valuable insight into improving ITV instruction. In short, to foster two-directional dialogue and enhanced autonomous student interaction, we must first strengthen the level of interpersonal connection.

Student and faculty interview and focus group respondents offered many suggestions for best practices to enhance the ITV experience. Enhanced training for both

faculty and students was advocated by both groups. One faculty member likened her first semester teaching ITV to being "baptized by fire" and acknowledged that the training she received focused only on the basic functions of the equipment. In other words, the training focused only on the platform and basic functionality and overlooked the pedagogical adaptation required to enhance student interaction. To decrease transactional distance and increase student interaction in the ITV classroom, institutions should focus on faculty training in pedagogical considerations and interpersonal components and student training in technology use and classroom etiquette.

The majority of faculty interview participants asserted that teaching ITV is difficult and is more challenging than teaching face-to-face classes. This difficulty went far deeper than concerns about the equipment in the room, however. Faculty expressed a desire for more training in adapting pedagogy to better fit an ITV format. Many noted the tendency to default to a lecture-based teaching style despite not relying on this style in face-to-face classes. Lecture-based style allows for students to passively receive the course material without having to add to the dialogic or autonomous interactions of the class. This style also limits opportunity for students to interact with one another in group work in and between campus sites. Therefore, by defaulting to a lecture-based style, a deficit of dialogue, autonomy, and interpersonal interactions is embedded into the very framework of the class. In addition, several faculty described an emerging use of new technology to enhance interaction within their ITV courses, including interactive quiz applications and technologies such as Zoom to host live one-on-one office hours. Because many faculty who teach at the remote sites have fewer opportunities to share teaching techniques, they would benefit from organized training in these areas.

Student interviewees expressed a desire for training before taking the first ITV course. Several mentioned having to be in charge of adjusting equipment at a remote site with no prior training. Comfort with the equipment seems to improve with exposure. To facilitate this, institutions could have a technician at the remote sites during the first week of classes to address any issues and help students learn to use the equipment. In addition to training with the technology, students expressed a desire for etiquette training. This would be best delivered by the instructor during the first week of class and could be integrated in more detail in the syllabus. Instructors should address such common issues as cell phone usage, disruptive side conversations during class, and protocol for microphone usage. Students mentioned the fear of interrupting the instructor by keying the microphone. Instructors should clearly outline the protocol for keying in on the microphone so that students may become less hesitant to interact.

Lastly, it is vital for institutions to understand the dependent nature of the three factors examined in this study. If students have a decreased perception of interpersonal connection within a class, they will be less likely to participate in bi-directional dialogue and to respond autonomously during ITV courses. If instructors view their efforts to foster interpersonal relationships with and between students as more robust than students do, we may risk opportunities to strengthen these relationships and by extension dialogue and autonomy. Though students and faculty mentioned many ways to improve interpersonal relationships, the resounding consensus was that face-to-face interaction early in the semester is vital. To encourage greater use of the teach back, institutions should provide adequate time in the instructor's schedule to allow for travel between

campus locations. Also, institutions should consider a financial incentive to account for the added time requirement and expense of this travel.

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SECTION FIVE:

CONTRIBUTION TO SCHOLARSHIP

From Access to Equity: Student and Instructor Perspectives of ITV Instruction

Swaths of the state have been left behind in the drive toward greater academic achievement. A quick glance at a map of post-secondary educational attainment in the state reveals the truth of the matter. Though these areas are represented in scattered fashion across the map, the southeast corner of the state immediately draws the viewer's eye. With the exception of two darker areas in the center, which are within driving distance of two institutions of higher learning, the region is awash in white, illustrating the lowest levels of academic attainment charted on the diagram (U.S. Census Bureau, 2017). In an age of progress, regions of our state, many of them rural as is the case with the southeast region, have become academic deserts.

In a map depicting high school graduation rates in the same report, it is impossible to miss the swath of darkness that one could transpose directly on top of the earlier map of post-secondary achievement. Of course, logic would have it then that students who did not finish high school at high rates would not be able to go on to college; however, even those rural students who complete high school often find the transition to college fraught with difficulties. According to the National Center for Education Statistics, 42% of individuals between the ages of 18 and 24 pursue some form of higher education; Among rural students, only 29% are enrolled. In populations over the age of 25 nationally, nearly half complete some type of post-secondary education while fewer than one in five rural students do (Marcus & Krupnick, 2017).

In response to the above statistics, institutions across the country have focused on providing greater access to higher education in these rural regions. Turnrow University and Greenfield Community College (Greenfield), two Midwestern institutions, have

sought to address these challenges by opening regional campus sites so students in rural areas, many of whom are geographically bound, can achieve their academic goals. This access has been provided in large part through interactive television (ITV), a synchronous platform that allows students at a distance access (Lee, 2017). Through the use of television technology and microphones, students at remote sites are able to interact in real time with their instructors and fellow students. In turn, universities like Turnrow and Greenfield can "economize on teaching resources and subject matter expertise" (Bernard et al., 2004, p. 386).

As technology has advanced, universities (and subsequently researchers) have shifted focus from 2nd generation technologies such as ITV to 3rd generation platforms such as online learning (Garrison, 1989; Lee, 20017). The danger in this shift lies not in the advent of the new technologies or in the research interest they garner. Rather, the danger lies in the falling away of research into earlier generation technology despite the fact that, for rural students like those served by Turnrow and Greenfield, ITV technology is the primary means of academic access. Educators should carefully examine the premise that distance education (DE) is a linear progression wherein each new technology holds greater pedagogical value and opportunity than the last (Pittman, 2013).

The ITV platform provides a dedicated/single source channel that is vital in areas of digital poverty, areas prone to spotty networks and low bandwidth. For many students in rural areas consistent network access needed to succeed in online courses is not guaranteed. The geographical distribution points provided by the ITV platform is essential to overcoming this type of access barrier. While online only education in these areas could be compared to a convoy of individual vehicles on a dirt road, ITV, as a

single source channel, is analogous to a train carrying all students to the desired destination.

A gap in the literature remains regarding ITV instruction as a DE platform in part because of what Clark (1994) describes as researchers' tendency to become enamored of the new technology instead of looking at sound instructional practice within an already established medium. Because research has focused primarily on academic achievement and a comparative focus between traditional face-to-face courses versus DE courses, little is known about the way students and faculty perceive the level of engagement in ITV courses. Less still is known about best practices to mitigate possible barriers to student and instructor engagement. Using Moore's Theory of Transactional Distance and Tinto's work on social connectedness as guiding frameworks, this study seeks to encourage a renewed focus on earlier generation technologies (in this case ITV.)

Conceptual/Theoretical Frameworks

Interactive television, as a distance education platform, poses specific challenges in bridging transactional distance as defined by Michael G. Moore. Transactional distance, the framework on which this study is loosely based, is defined as "the gap of understanding and communication between the teachers and learners caused by geographic distance that must be bridged through distinctive procedures in instructional design and the facilitation of interaction" (Moore & Kearsley, 2005, p. 223). The components of transactional distance reach beyond simple geography to include structure, dialogue, and learner autonomy (Moore, 1993).

The structural component of Moore's theory posits that students operating in a tightly structured environment with limited dialogue will be required to exhibit greater

levels of autonomy to achieve successful outcomes. The level of learner autonomy required is directly related to the levels of structure and dialogue in a course. Structure affects dialogue and dialogue affects autonomy. Teachers who are new to ITV instruction may over-structure their class time, resulting in decreased dialogue and increased transactional distance (Moore, 1993). It is essential to understand how the components of transactional distance are interacting within the ITV classroom to facilitate best practices.

The dialogic component of the Theory of Transactional Distance asserts that interactions must be "purposeful, constructive, and valued by each party" (Moore, 1993, p. 24). Each participant in the interaction must be not only a respectful listener, but also a contributor to the dialogue. Even in synchronous platforms like ITV where, in theory, dialogic interactions should be free-flowing and unimpeded, this flow may be hindered by instructors who do not know how to encourage it or students who are unable or unwilling to engage. In other words, providing the technology to facilitate these exchanges does not mean that they will occur. What is certain within this theoretical framework, however, is that "one of the major determinants of the extent to which the transactional distance will be overcome is whether dialogue between learners and instructors is possible and the extent to which it is achieved" (Moore, 1993, p. 26). The ITV platform certainly allows for the possibility of dialogue; however, this study will examine whether students and faculty perceive that such dialogue is occurring.

Autonomy can be defined as the extent to which the student is in control of the learning experience. This relates specifically to a student's decision to key the microphone and speak in the class or to ask questions and/or debate topics. In other

words, in this study, autonomy will be examined from the perspective of the student's contributions to the learning process and his or her willingness to engage with the learning environment, to include other students and the instructor.

Utilizing the work of Tinto (1993; 1998; 2006), this study also examined student and faculty perceptions of social connectedness in the ITV classroom. Student success is enhanced by the creation of a cohesive learning environment that fosters social connectedness through a sense of belonging (Rovai, 2002). Understanding the perceived transactional distance between stakeholders in a synchronous educational platform like ITV is vital if we are to traverse the theoretical distance that overcoming geographical distance can create.

Review of Literature

Keegan (1996) aptly discussed distance education's "fragile theoretical underpinnings" (p. 15). The discipline, which he termed a collection of partial theories developed in response to specific issues, lacks the cohesiveness of other areas of educational research. Defining terms in distance education research proves difficult and ever-shifting as new technologies emerge. From the earliest writings on distance education dealing primarily with traditional correspondence courses to the first mention of ITV in 1989, it is important to understand the chronological evolution of the field (Barker, Frisbie, & Patrick, 1989). However, when seeking a functional definition of distance education relating to the ITV platform, Keegan's (1993) definition of the "quasi-permanent separation of teacher and learner" (p. 50) that utilizes technology as a unifying mediator is particularly useful. As new technologies have emerged and the ways that

teachers and learners interact have evolved, new frameworks have been developed and have been built upon to offer an ever-changing basis of inquiry

Though research focusing on ITV instruction is limited, studies have outlined some general findings. Student attitudes toward the ITV platform are positively correlated to their exposure to multiple ITV courses (Bacon & Jakovich, 2001; Wetzel, Radtke, & Stern, 1994). Faculty are not immune to this exposure effect; Kendall and Oaks (1992) found that experienced ITV faculty exhibited more positive attitudes toward the instructional platform than less experienced faculty. For both students and faculty, experience with the modality resulted in improved attitudes toward it, perhaps as a result of increased comfort levels with the technology (Lyons, MacBrayne, & Johnson, 1994).

The location of the student may also affect his or her perceptions in an ITV setting. Students at remote sites where the instructor is not physically present report greater satisfaction with the ITV platform (Wheeler & Batchelder, 1996; Zarghami, 1998). Thomerson and Smith (1996) explain this tendency as the result of the remote students' perception that they are gaining from having access to the technology and thus the educational exchange when they otherwise would not. In contrast, students attending with the instructor physically present often saw the platform as "unnecessary, unproductive, and burdensome" (Anderson et al., 2002, p. 165).

Kochman (1998) and Wheeler and Batchelder (1996) discuss the increased sense of disconnection that students at remote sites may experience due to difficulties in communication and interaction. Anderson et al. (2002) outlined three specific barriers to interaction: (1) limited student-instructor interaction, (2) feedback delays, and (3) faculty inability to notice students' verbal and nonverbal cues.

Studies examining faculty perspectives are limited; however, research indicates that faculty are less enthusiastic when teaching ITV courses possibly due to greater workload, technological malfunctions, and limited student-instructor interactions (Anderson & Kent, 2002).

Social connectedness through fostering a sense of belonging and interpersonal relationships enhances student success (Rovai, 2002). Tinto's research (1993; 1998; 2006) promotes the importance of fostering a sense of community among the various levels of educational stakeholders—students, faculty, and staff. Institutions must encourage social connectedness and a sense of belonging in all students, on-campus and off-campus student populations (Allen et al., 2008; Irani et al., 2014; Tinto, 2006).

Dae Shik, Lee, and Skellinger (2012) found that students at off-campus sites expressed dissatisfaction with the level of faculty-student and student-student interaction. In light of the connection between student persistence and sense of belonging, these student perspectives must be considered. In distance education platforms like ITV courses, mitigating the transactional distance between faculty and students and between the students attending at various sites is essential to the community building required for a truly inclusive learning environment.

Universities must encourage connectedness and seek to avoid allowing a sense of social isolation to develop within off-campus student populations. Coleman's (1988) Social Capital Theory established that groups built on trust and a sense of belonging achieved through relational connection would be much stronger. Recent studies have confirmed that a direct link exists between social connectedness and student retention (Allen et al., 2008; Irani et al., 2014). Attention to these concepts is vital in any course;

however, when transactional distance is enhanced as it is in distance education platforms, instructors must often overcome barriers not found in face-to-face courses.

Best Practices

Fulford and Zhang (1993) assert that student perceptions of the level of interaction are what matters. To improve these perceptions, instructors may provide greater opportunity for group work instead of focusing so intently on increasing individual teacher/student interactions. Instructors should also be encouraged to move away from lecture-based instruction and to provide web-based activities to provide opportunities for inter-learner and student-instructor interactions (Gunawardena, 1992; Hegge, 1993). These techniques should provide opportunities for the three types of interactions as outlined by Moore (1989): (1) learner-instructor, (2) learner-content, and (3) learner-learner.

Once it is certain that instructors possess adequate content knowledge, they must be adequately trained in techniques of blending content knowledge and pedagogical knowledge to include training in adapting face-to-face content for presentation in an ITV course (Anderson & Kent, 2002). Lastly, to enhance student-instructor interaction, instructors should be encouraged to travel to remote sites to conduct a teach back session (Wheeler & Batchelder, 1996).

Methods

An explanatory sequential mixed methods grounded theory (MM-GT) study was utilized to examine student and instructor perspectives of engagement within the ITV instructional platform. The quantitative and qualitative portions of this study were conducted on the main and regional campus locations of Turnrow University and

Greenfield Community College, both moderately sized Midwestern institutions chosen for participation due to their shared mission of providing educational access to the region's largely rural, underserved populations. During the spring 2018 semester, Turnrow University and Greenfield Community College reported total undergraduate enrollment numbers (main campus and regional sites) of 9,348 students and 3,124 respectively.

Participants

Using stratified sampling, surveys were sent to the entire undergraduate student population and faculty populations of both institutions. To complete the survey, student participants were limited to undergraduate students over the age of 18 who were currently enrolled in or who had been previously enrolled in at least one ITV course. Faculty participants were limited to those who were currently teaching or who had previously taught at least one ITV course. Participation in the survey was optional and students and faculty were informed of this through the informed consent provided at the time of the survey (Creswell, 2014). All student and faculty participants who elected to participate were entered into a raffle for one (1) of eight (8) $25.00 Amazon gift cards.

In the student qualitative portions, nine personal interviews were conducted at Turnrow University. A student focus group consisting of five student participants in addition to three personal interviews were conducted at Greenfield Community College. The researcher was careful to include students from the main and regional campus locations. Faculty focus groups were conducted at both institutions, consisting of six faculty participants at each location. In addition to these focus groups, ten faculty personal interviews were conducted at Turnrow University. The faculty participants spanned 16

different fields of academic study with primary teaching responsibilities at both main campus and regional campus sites.

Data Collection Tools

Participants completed online cross-sectional Qualtrics surveys beginning with items assessing demographics and then progressing to items assessing their perceptions of the ITV platform utilizing a 5-point Likert scale with 1 = Strongly Agree and 5 = Strongly Disagree. On the faculty survey, questions were modified to focus on the instructor perspective. To assure respondent anonymity, participants were not asked to provide identifying demographic information (Creswell, 2014). Surveys were sent out after mid-term reporting. This timing was strategic so that students who were taking ITV courses for the first time and faculty who were teaching ITV classes for the first time would have adequate experience on which to base their responses.

Semi-structured focus group and interview questions were constructed based on themes identified in the student and faculty survey data. The faculty focus group and student focus group consisted of 13 open-ended questions each, though the goal was to allow for free-flowing conversation, or what Dexter (1970) termed a "conversation with a purpose" (Merriam & Tisdell, 2016, p. 108).

Data Analysis

Quantitative analysis of survey data was performed using IBM SPSS software. A principal axis factor analysis to isolate themes was conducted on the student and faculty survey data to assess the underlying dimensions of the ITV Perspectives Survey. From the student and faculty factor analysis results, a multivariate factor structure emerged between the two data sets. A Cronbach's alpha was conducted on the questions identified

in each theme to understand whether the questions in the survey all reliably measured the same latent engagement variables (e.g., "dialogic," "autonomous," and "interpersonal" (Creswell, 2014). A series of one-way ANOVAs was conducted to determine whether there was a significant difference between student and faculty responses to each factor. Independent-samples *t*-test was performed on the identified themes to determine whether there was significant agreement or disagreement, as reflected by mean responses that signifigantly differ from the neurtral point on the Likert scale. It is important to note here that the survey scale ran from one to five, with the lower numbers reflecting higher positivity.

Because of the emergent nature of qualitative inquiry and to avoid "unfocused, repetitious, and overwhelming" results, data from both the quantitative and qualitative portions were analyzed as they were obtained, and the results of earlier data informed choices made about later data collection (Merriam & Tisdell, 2016, p. 197). Open coding, a valuable method of isolating themes in grounded theory research was utilized, and qualitative data were coded by three readers, the researcher and two assistants, to ensure inter-coder reliability (Strauss & Corbin, 1990).

Findings

The research questions guiding this study include the following:

- How do students perceive the level of dialogic interaction in ITV courses?
- How do instructors perceive the level of dialogic interaction in ITV courses?
- How do students perceive the level of learner autonomy in ITV courses?
- How do instructors perceive the level of learner autonomy in ITV courses?

- How do students perceive the level of social connectedness in ITV courses?
- How do instructors perceive the level of social connectedness in ITV courses?
- How might dialogic interaction, learner autonomy, and social connectedness be enhanced in ITV courses?

A principal axis factor analysis (PFA) was run on a 17-question survey measuring student perceptions of ITV instruction (n = 442). The rotated factor matrix showed that all variables except Q3 had at least one correlation coefficient greater than 0.4. Bartlett's Test of Sphericity was statistically significant ($p < .001$), which supports that the data were likely factorizable. The overall Kaiser-Meyer-Olkin (KMO) measure was 0.85 denoting an overall "meritorious" suitability for factor analysis (Kaiser, 1974).

PFA revealed four factors with eigenvalues greater than one. However, the scree plot indicated that three components should be retained as they fell before the inflection point. This three-factor model was supported by the varimax rotated component matrix, fulfilling the interpretability criterion and exhibiting 'simple structure'. Thus, three factors of engagement were retained. The factors had a high level of internal consistency as established by Cronbach's alpha scores of .846, .745, and .718, respectively. Component factor loadings are outlined in Table 1 below.

Dialogic Engagement (Factor 1) examines student and faculty perceptions of two-way diaglogue between students and faculty and between different campus locations in the ITV setting. Autonomous Engagement (Factor 2) examines student and faculty perceptions of students' willingness to independently engage with faculty and other

students. Interpersonal Engagement (Factor 3) examines student and faculty perceptions of the level of interpersonal interaction.

Table 1

Factor Loadings for Principle Factor Analysis With Varimax Rotation of Student Data

Item	Factor 1	Factor 2	Factor 3	Factor 4
Q10_13	**.799**	.069	.136	-.168
Q10_11	**.733**	.247	.002	-.117
Q10_10	**.700**	.283	.149	-.092
Q10_14	**.670**	.084	.172	.033
Q10_15	**.618**	.042	.038	.351
Q10_16	**.495**	.035	.086	.260
Q10_2r	.023	**.687**	.314	.367
Q10_1r	-.004	**.683**	.363	.274
Q10_6r	.151	**.608**	.248	-.003
Q10_12r	.286	**.561**	.027	-.049
Q10_9r	.187	**.550**	.190	-.148
Q10_5r	.106	**.499**	.120	-.134
Q10_4r	.034	**.487**	.128	.215
Q10_7	.083	.134	**.713**	-.001
Q10_17	.170	.302	**.615**	-.044
Q10_8	.127	.184	**.575**	.142
Q10_3	.067	.298	.353	-.020

Note. Factor loadings > .40 are in boldface. Items marked r denote reversed items. Please see the appendix for text of the survey items.

As with the student data above, a principal axis factor analysis was run on a 17-question survey measuring faculty perceptions of ITV instruction (n = 99). The rotated factor matrix showed that all variables with the exceptions of Q3 and Q5R had at least one correlation coefficient greater than 0.4. Bartlett's Test of Sphericity was statistically significant ($p < .001$), which supports that the data were likely factorizable. The overall Kaiser-Meyer-Olkin measure was .76 denoting an overall "middling" suitability for factor analysis (Kaiser, 1974).

PFA revealed four factors with eigenvalues greater than one. The scree plot and the varimax rotated component matrix supported the four-factor model of analysis for the faculty survey. However, since this study seeks to compare student and faculty perceptions, the three faculty factors that aligned with the three student factors were retained. Cronbach's alpha was conducted on the three remaining factors resulting in scores of .870, .710, and .580, respectively. Component factor loadings are outlined in Table 2 below.

Table 2

Factor Loadings for Principle Factor Analysis With Varimax Rotation of Faculty Data

Item	Factor 1	Factor 2	Factor 3	Factor 4
Q5_11	**.855**	.016	.159	.149
Q5_10	**.840**	.045	.114	.228
Q5_13	**.622**	.181	-.150	.051
Q5_17	**.600**	.288	.076	.504
Q5_15	**.558**	.112	.124	.527
Q5_1r	.102	**.742**	.337	.066
Q5_2r	.023	**.664**	.352	.235
Q5_9r	.292	**.467**	.073	.013
Q5_7	.089	-.040	**.566**	.038
Q5_16	.034	.097	**.563**	-.137
Q5_4r	-.009	.263	**.520**	.262
Q5_8	-.095	.105	**.482**	.035
Q5_3	.122	.177	.352	.035
Q5_14	.110	-.002	.152	**.554**
Q5_6r	.327	.390	.073	**.477**
Q5_12r	.302	.108	-.160	**.473**
Q5_5r	-.020	.372	-.274	.380

Note. Factor loadings > .40 are in boldface. Items marked r denote reversed items. Please see the appendix for text of the survey items.

Though the student and faculty surveys mirrored each other, the questions were not numbered in the same order. When the two factor analysis results were combined a three-factor model emerged as show in Table 3 below.

Table 3

Three-Factor Model of Student and Faculty Perceptions of ITV Instruction

Factor 1 Dialogic		Factor 2 Autonomous		Factor 3 Interpersonal	
Faculty Items	Student Items	Faculty Items	Student Items	Faculty Items	Student Items
10	10	1r	1r	7	7
11	11	2r	2r	8	8
13	14	9r	9r	16	17
15	15				
17	13				

Note. Items marked with r denote a reversed item. Please see the appendix for text of the survey items. Data are mean ± standard deviation, unless otherwise stated.

Inspection of Q-Q Plots revealed that all three factors were normally distributed. Levene's Test for Equality of Variances illustrated homogeneity of variance for Factor 2 only (p = .228). Therefore, equal variances were not assumed for Factors 1 (p = .029) and 3 (p = .002). An independent-samples t-test was conducted on the data for each factor with a 95% confidence interval (CI) to determine if there were differences in student and faculty perceptions in each factor. There were no statistical differences between main campus and regional campus students for Factor 1, 2, or 3 (all ps < .4). However, there was a statistically significant difference between main campus student and faculty responses for all three factors (all ps < .01) and regional campus student and faculty responses for all three factors (all ps < .01). Independent samples t-test for all students vs all faculty are outlined in Table 4 below.

Table 4

Independent Samples Test Group Statistics

All Students vs Faculty		N	Mean	Std. Deviation	Std. Error Mean
Factor 1	1.00	442	3.6112	.79825	.03797
	2.00	99	3.9591	.63965	.06429
Factor 2	1.00	442	2.8707	.92809	.04414
	2.00	99	3.2694	.81326	.08174
Factor 3	1.00	441	2.6829	.91235	.04345
	2.00	99	2.0976	.65682	.06601

Note. Students=1.00 Faculty=2 .00

A one-way ANOVA was conducted to determine if there were significant differences in perception of the three ITV factors among main campus student (n = 186), regional campus student (n = 256), and faculty respondents (n = 99). The data were normally distributed for each group, as assessed by analysis of Q-Q plots. The assumption of homogeneity of variances was violated for Factor 1 (p = .038) and Factor 3 (p = .004) and was met for Factor 2 (p = .408), as assessed by Levene's test for equality of variances. ANOVA results for each factor are outlined in Table 5 below.

Table 5

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Factor1	1.00	186	3.6290	.77934	.05714	3.5163	3.7418	1.00	5.00
	2.00	256	3.5982	.81299	.05081	3.4982	3.6983	1.00	5.00
	3.00	99	3.9591	.63965	.06429	3.8315	4.0867	2.80	5.00
	Total	541	3.6749	.78279	.03365	3.6088	3.7410	1.00	5.00
Factor2	1.00	186	2.8593	.89480	.06561	2.7299	2.9888	1.00	5.00
	2.00	256	2.8789	.95320	.05958	2.7616	2.9962	1.00	5.00
	3.00	99	3.2694	.81326	.08174	3.1072	3.4316	1.33	5.00
	Total	541	2.9436	.92048	.03957	2.8659	3.0214	1.00	5.00
Factor3	1.00	186	2.6254	.93132	.06829	2.4907	2.7602	1.00	5.00
	2.00	255	2.7248	.89777	.05622	2.6141	2.8356	1.00	5.00
	3.00	99	2.0976	.65682	.06601	1.9666	2.2286	1.00	3.33
	Total	540	2.5756	.89962	.03871	2.4996	2.6517	1.00	5.00

Note. ANOVA 1.00 =Main Campus 2.00=Regional Campus 3.00=Faculty

Factor 1: Dialogic Interaction. ANOVA revealed Factor 1 was significantly different among the three groups compared (main campus students, regional campus students, and faculty, Welch's $F(2, 283.668) = 10.871$, $p < .001$. Factor 1 score increased from the main campus group ($M = 3.63 \pm 0.78$) and regional campus group ($M = 3.60 \pm 0.81$) to the faculty group ($M = 3.96 \pm 0.64$). Thus, student respondents reported higher positive perceptions of factor 1 (dialogic interactions) than did faculty.

Independent samples *t*-test revealed a statistically significant difference in mean Factor 1 score between students and faculty, $t(173.600) = -4.660$, $p < .001$, with students rating this factor higher ($M = 3.61 \pm 0.798$) than faculty ($M = 3.96 \pm 0.640$), illustrating a statistically significant difference of -0.35 (95% CI, -0.50 to -0.20), $t(173.600) = -4.660$, $p < .001$.

During the interviews, both students and faculty highlighted how student expectations regarding the ITV platform hinders bi-directional dialogue. Both groups acknowledged students may enroll in ITV courses with the expectation that speaking out

in class is required less frequently. Several students even shared that ITV courses are less intimidating because they are expected to talk less than in face-to-face courses.

From a pedagogical standpoint, many faculty members acknowledged an enhanced tendency toward lecture-based instruction when teaching ITV classes. The lack of instructional spontaneity was mentioned by faculty many times throughout the interviews and focus groups. Faculty expressed frustration at the inability to adapt course materials quickly and provide them to the remote sites in time for the next class. One instructor explained this frustration: "If you do want [students] to have something, you do have to plan relatively far in advance [. . .] unless you are Johnny on the spot every single day, which I am not, sometimes I just don't do things because I don't have 24 hours of notice of the idea I had." Faculty admitted that a lecture-based approach is often simply easier than other more interactive approaches. Students interviewees also noticed the privileging of lecture in ITV classes, and one student explained how this approach contributes to the one-directional dialogue: Because lecture is fast-paced, "it feels like you cannot ask questions since by the time your microphone is heard, [the professor] has moved on." When asked why they may be hesitant to speak in class, student interviewees mentioned the fear of interrupting the instructor during lecture.

Both faculty and students acknowledged the tendency toward one-directional dialogue in ITV courses. However, students seem more accepting of this tendency, and at times, may even consider it a positive attribute of the platform, some admitting that they take ITV courses because there are fewer dialogic interactions. Instructors, aware of the importance of the dialogic exchange to student learning, view the lack of organic, free-flowing dialogue as a major impediment. The majority of faculty and student

interviewees commented on the lack of inter-campus dialogue between students, asserting that students tend to form learning communities with fellow students at their campus while rarely engaging with those at distant locations. When groups are formed, they consist of students from a single campus, thus further enforcing the divide between campus sites. The result is profound as one student described: "We're not one class. We have the same teacher, but we're four separate classes." A faculty interviewee noted this disconnect as well and compared it to students feeling like they are "in a classroom instead of in a class."

Student and faculty suggestions for improving dialogic interaction in ITV courses fall into two main categories: (1) pedagogy and (2) technology. Both student and faculty acknowledge that a strictly lecture-based teaching style does little to enhance the learning process in the ITV classroom. Both groups suggested implementing more project-based group assignments; however, it is important to note that students expressed a desire for more opportunities to work with students from other campus sites, suggesting that this type of interaction, though initially forced, could result in students' increased willingness to engage in dialogue with students at other campus locations. Several instructors also mentioned inter-campus group work; however, most expressed less than positive outcomes when this type of interaction was attempted. Students and faculty both acknowledged the importance of strategic questioning to enhance student-instructor dialogue. Instructors should rotate between the campus locations, allowing students equal time to express their thoughts. One instructor noted her own discomfort with the silence and lack of non-verbal cues after a question is posed which results in a missed opportunity to encourage engagement. To overcome this discomfort, faculty should set

participation standards early in the course and clarify the policy on keying the mic. Having clear and consistent guidelines in place, may alleviate students' fear of interrupting the instructor and further encourage dialogic engagement.

Overcoming barriers to dialogic engagement may require an even greater emphasis on technology. This objective cannot be accomplished by the instructor alone, however. Though instructors can utilize outside apps like Kahoots to engage students with questioning and may provide students opportunities to engage in forums within the institution's learning platform, many of the technology suggestions will require a greater technological, and thus financial, investment. Several students mentioned the possible benefit of implementing a hand-raising app whereby students could signal to the instructor in some way that they have questions or comments. In addition, faculty and students proposed that mobile instructor microphones and verbally responsive student microphones could increase dialogue by mediating delays.

Factor 2: Autonomous Interaction. ANOVA revealed Factor 2 was statistically significantly different for the three groups compared, $F(2,538) = 7.804$, $p < .001$. Factor 2 score increased from the main campus group ($M = 2.86 \pm 0.89$) and regional campus group ($M = 2.88 \pm 0.95$) to the faculty group ($M = 2.94 \pm 0.92$). Thus, student respondents reported higher positive perceptions of factor 2 (autonomous interactions) than did faculty.

Independent samples *t*-test revealed a statistically significant difference in mean Factor 2 score between students and faculty, $t(539) = -3.948$, $p < .001$, with students rating this factor higher ($M = 2.87 \pm 0.93$) than faculty ($M = 3.27 \pm .81$), illustrating a

statistically significant difference of -0.40 (95% CI, -0.60 to -0.20), $t(539) = -3.948$, $p < .001$.

During the interviews and focus groups, several corresponding factors emerged regarding the level of autonomous interaction present within the ITV classroom. One such area dealt with an acknowledgement of the intrinsic motivation that is required of students. The majority of faculty felt as though they were often left in the untenable position of "begging [students] to talk." Many students acknowledged the tendency toward a more passive role in ITV classes. However, the reasons for this lack of engagement autonomy were explained differently. While many faculty expressed the belief that a student's autonomous engagement is largely decided by student personality, students more often viewed failure to engage as a direct result of the lack of instructor presence. Students at both home and remote sites remarked upon a negative difference in their autonomous responses when the teacher was not physically present. They further explained that physical distance from the instructor makes it harder to pay attention, focus on the television, and avoid distractions. One student explained this disconnect at the remote locations: "I feel like I'm in a room just watching TV [. . .] I don't feel like I'm part of it." Once students have become disengaged from the learning process as a whole, it is difficult for them to be in a position to autonomously engage. The same student went on to acknowledge that she realized she could be a participating part of the class if she just pushed the microphone but "the whole environment" prevents it.

Over the course of many interviews, it became clear that the lack of dialogic spontaneity critical in Factor 1 also negatively affected students' willingness to autonomously engage. A desire to avoid interrupting the instructor or other students

during discussion was frequently cited as a hindrance to autonomous engagement. However, students described the level of interpersonal connection with the instructor as the primary determiner of student autonomous engagement: "They let me know that my opinions matter, my ideas matter, and in those classes that's when I feel more willing to say, 'Hey, I have a question.'" Another student, when asked what determines his willingness to autonomously contribute to class discussion, declared that "it depends on the teacher's encouragement, like to ask questions, how accepting the teacher is, how nice they are, so I can feel more comfortable with them and with the questions." Therefore, in the search for greater learner autonomy in ITV courses, we must not limit our efforts by focusing solely on students' refusal to engage. We must look further into strengthening the relational dynamics that students say, in many cases, determine their level of engagement.

Factor 3: Interpersonal Interaction. ANOVA revealed Factor 3 was statistically significantly different for the three groups compared, Welch's $F(2, 292.964) = 28.174$, $p < .001$. Factor 3 score decreased from the main campus group ($M = 2.63 \pm 0.93$) and regional campus group ($M = 2.72 \pm 0.90$) to the faculty group ($M = 2.10 \pm 0.66$). Thus, faculty reported higher positive perceptions of factor 3 (interpersonal interactions) than was reported by student respondents.

There was a statistically significant difference in mean Factor 3 score between students and faculty, $t(193.207) = 7.406$, $p < .001$, with students rating this factor lower ($M = 2.69 \pm 0.91$) than faculty ($M = 2.10 \pm 0.66$), illustrating a statistically significant difference of 0.59 (95%CI, 0.43 to 0.74), $t(193.207) = 7.406$, $p < .001$.

As human beings, we are driven to connect to those around us. One student explained how that desire for connection manifests itself in the classroom: "I am a creature who craves connections. While I take my learning very seriously, college is more than just learning. It's about establishing relationships and connections." As the student later mentioned, this forging of productive relationships, instructor-student and student-student, can be challenging in ITV classes.

Students at the remote locations expressed a greater interpersonal disconnect, and many declared a need for instructors to make the learning process feel more personal. One remote site student lamented that instructors "get to know [home site students] better so [. . .] it's like we're not legitimate students. We're just faceless people on the TV." Other students spoke in absolute terms regarding the role that the instructor plays in establishing relationships and providing a successful experience:

> The success of the ITV course depends almost solely on the instructor. [. . .] I've had ITV courses where the instructor sits back and never messes with moving the camera or asking questions or getting real involvement. They put all the effort on the students, thinking if they want to learn, they will. These classes are rarely successful.

Students were just as willing to discuss successful experiences in ITV classes. Again, those experiences focused not on materials, technology, or environment; The most successful experiences were a direct result of the student feeling connected to the instructor. As the result of one such experience, a hesitant student who "was very anxious prior to starting [the] first ITV course" now "love[s] doing ITV courses." The student attributed this change to a single instructor who was both encouraging and

engaging and who left the students with a sense of comfort and security to actively engage in the class. Another student echoed these sentiments by praising the instructors who are "attentive to all classes" and who make an effort to meet all students. More often than not, when student interviewees were asked to describe a positive experience the response focused on a specific instructor; Many students echoed this student's sentiment: "I had a positive experience, but It was more with a teacher than with the class." Though ITV certainly poses specific challenges for both instructors and students, we must not lose sight of the successes that are occurring every day.

When asked about interactions among students at the various campus locations, faculty and student interviewees both acknowledged that students tend to connect with other students at their campus locations while engaging very little with students from other campus sites. One student explained her unwillingness to speak out in class as a direct result of not knowing the other students and being hesitant to speak in front of the other campus sites. Again, dialogue and autonomous interactions are decreased by the lack of interpersonal interactions.

Student interviewees discussed the importance of instructors gaining rapport with all students as early as possible in the semester. Once students gain a sense of interpersonal connection to the instructor, that instructor will be better able to encourage greater dialogic and autonomous engagement. Thus, the student interviewees returned to the relational aspect time and again throughout the interviews. This focus was most noted when students were asked to provide suggestions for improving the ITV learning experience. While faculty spoke largely of needed changes to the technology itself such

as mobile microphones and larger television screens, students expressed a greater need to connect to their instructors as people outside of the technology.

The power of naming became evident early in the interviews. Though it may seem like a small issue amongst much greater ones, students in both focus groups and personal interviews stressed how much they value being called by name instead of always being called upon by location. One student summarized her experience in a semester-long class: "She'd [the instructor] just say 'You right there' or 'One in the second seat.' She never said my name." When asked how to improve instructor-student interaction, she continued, "[. . .] Get to know me and who I am. Not just the girl in the seat."

Students' perception of an instructor's accessibility, both in class and outside of class, determines how willing they are to reach out for assistance. Many students mentioned that responsive instructors increase the likelihood of enhanced dialogue both in and out of class. Responsive habits that students mentioned included holding online office hours for remote sites and promptly returning emails and phone calls.

Without exception the most frequently mentioned concept in both student and faculty interviews was the teach back. In a teach back, the instructor travels to a remote site to teach a single class face-to-face. Whether discussing dialogic, autonomous, or interpersonal interactions, teach backs reemerged as a critical component to student engagement. Students commented upon their own increased engagement after a teach back, and faculty acknowledged the positive shift in engagement even after a single face-to-face interaction.

Discussion

Quantitative results found no statistically significant difference between main and regional campus students on any of the three factors. However, there was a statistically significant difference between student and faculty perceptions of all three factors. While it is tempting to examine the three factors of engagement (dialogic, autonomous, and interpersonal) individually, a qualitative approach revealed the dependent nature of the components.

Research questions one and two explored the dialogic component (Factor 1). ANOVA results for this factor revealed a statistically significant difference in student and faculty perceptions of the level of dialogue in ITV courses, with students expressing a higher positive perception than faculty. Both students and faculty acknowledged the tendency toward one-directional dialogue; however, students expressed a greater acceptance, and even at times appreciation, for this tendency, which can allow for a more passive student role in the educational exchange. Faculty, aware of the possible negative effect of one-directional interaction on learning outcomes, expressed a greater desire to enhance dialogue. Student and faculty respondents diverged in their explanation of one-directional dialogue, however. Faculty more frequently blamed technology barriers inherit to the ITV platform while students mentioned technology issues far less frequently. When asked why one-directional dialogue is prevalent, students most often cited a lack of interpersonal connection to the instructor and students at other campus locations.

Similarly, research questions three and four explored the autonomous component (Factor 2). Results indicated a statistically significant difference in student and faculty

perceptions, with students once again expressing a higher positive perception than faculty. In interviews and focus groups, students and faculty both acknowledged that autonomous interaction from students is limited in ITV classes. However, student and faculty perceptions diverged regarding the reason for this. While faculty looked to technology barriers and student personality as the foremost drivers of low autonomous interaction, students attributed this phenomenon directly to a lack of instructor presence. More important than the physical presence, students directly attributed low autonomous interaction to a decreased sense of interpersonal connection between themselves and their instructors.

When examining the interpersonal components addressed in research questions five and six (Factor 3), results indicated a reversal in the direction of perspective. As with the other two factors, results indicated a statistically significant difference in student and faculty perceptions; however, on this component, students expressed a lower positive perception of the level of interpersonal interactions than did faculty. Student interviews revealed that students view the level of interpersonal connection between themselves and their instructors as a direct result of faculty efforts to establish it. Whether asked to describe a positive or negative experience in an ITV class, student responses consistently focused on the teacher's role instead of the class platform.

One student summarized what many student participants posited: "The success of the ITV course depends almost solely on the instructor." Students and faculty agreed that dialogic interaction, autonomous interaction, and interpersonal interaction can be limited in ITV courses. While students do not seem to be as troubled as faculty by lesser dialogue or decreased autonomy, they express a heightened sense of disconnect to both

the instructor and students at other locations. When asked to explain their lower levels of dialogic and autonomous interaction (Factors 1 and 2), students invariably mentioned decreased interpersonal interactions (Factor 3). This assertion, coupled with the quantitative finding that faculty perceive interpersonal interactions with their students more favorably than students do, offers valuable insight into improving ITV instruction. In short, to foster two-directional dialogue and enhanced autonomous student interaction, we must first strengthen the level of interpersonal connection.

Limitations

Because this study focused on a limited number of sites, generalizability of the findings to higher education institutions not examined in the study is limited to those institutions that serve a similar population. In addition, it is not possible to determine the participation rate of ITV students and instructors. The survey was sent to the total population with only those with ITV experience being allowed to continue the survey. Therefore, there is no way to determine how many students and faculty with ITV experience opted to not take the survey. In addition, the research is currently employed at one of the participating institutions.

Implications for School Practitioners

Student and faculty interview and focus group respondents offered many suggestions for best practices to enhance the ITV experience. Enhanced training for both faculty and students was advocated by both groups. One faculty member likened her first semester teaching ITV to being “baptized by fire” and acknowledged that the training she received focused only on the basic functions of the equipment. In other words, the training focused only on the platform and basic functionality and overlooked the pedagogical adaptation required to enhance student interaction. Institutions should focus

on faculty training in pedagogical considerations and interpersonal components and student training in technology use and classroom etiquette to increase student interaction in the ITV classroom.

The majority of faculty interview participants asserted that teaching ITV is difficult and is more challenging than teaching face-to-face classes. This difficulty went far deeper than concerns about the equipment in the room, however. Faculty expressed a desire for more training in adapting pedagogy to better fit an ITV format. Many noted the tendency to default to a lecture-based teaching style despite not relying on this style in face-to-face classes. Lecture-based style allows for students to passively receive the course material without having to add to the dialogic or autonomous interactions of the class. This style also limits opportunity for students to interact with one another in group work in and between campus sites. Therefore, by defaulting to a lecture-based style, a deficit of dialogue, autonomy, and interpersonal interactions is embedded into the very framework of the class. In addition, several faculty respondents described an emerging use of new technology to enhance interaction within their ITV courses, including interactive quiz applications and technologies such as Zoom to host live one-on-one office hours. Because many faculty who teach at the remote sites have fewer opportunities to share teaching techniques, they would benefit from organized training in these areas.

Student interviewees expressed a desire for training before taking the first ITV course. Several mentioned having to be in charge of adjusting equipment at a remote site with no prior training. Comfort with the equipment seems to improve with exposure. Therefore,-institutions could have a technician at the remote sites during the first week of

classes to address any issues and help students learn to use the equipment. In addition to training with the technology, students expressed a desire for etiquette training. This would be best delivered by the instructor during the first week of class and could be integrated in more detail in the syllabus. Instructors should address such common issues as cell phone usage, disruptive side conversations during class, and protocol for microphone usage. Students mentioned the fear of interrupting the instructor by keying the microphone. Instructors should clearly outline the protocol for keying in on the microphone so that students may become less hesitant to interact.

Lastly, students and faculty mentioned many ways to improve interpersonal relationships; however, the resounding consensus was that face-to-face interaction early in the semester is vital. To encourage greater use of the teach back, institutions should provide adequate time in the instructor's schedule to allow for travel between campus locations. Also, institutions should consider a financial incentive to account for the added time requirement and expense of this travel. It is vital for institutions to understand the dependent nature of the three factors examined in this study. If students have a decreased perception of interpersonal connection within a class, they will be less likely to participate in bi-directional dialogue and to respond autonomously during ITV courses. If instructors view their efforts to foster interpersonal relationships with and between students as more robust than students do, we may risk opportunities to strengthen these relationships and by extension dialogue and autonomy.

Implications for Future Research

This article will be submitted to the *International Journal of Humanities and Social Science Review*. Though this study focused solely on ITV technology, similar studies

into new and emerging technologies would be beneficial. Additional research is needed to determine best practices for enhancing interpersonal relationships in later-generation platforms like online and Zoom. As we continue to reach students in new ways, it is vital to examine these new platforms to ensure that student and faculty perceptions of these technologies align.

Educational technology has become, in many ways, a zero-sum process. Research attention becomes homed in on the newest platform while other, often still utilized, platforms are no longer deemed research-worthy. Further studies are needed to determine how educators can move away from the one-technology -at-a-time mindset by embracing newer technologies like Zoom. These technologies may offer instructors a greater possibility of enhancing the interpersonal interactions with students at a distance.

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SECTION SIX:

SCHOLARLY PRACTITIONER REFLECTION

Dissertation Process Influence on Educational Leadership

Research is a dependent process. A researcher may have a grand idea and a solid plan for gathering the required data; however, the speed at which the process moves is often out of the researcher's hands entirely. Inquiries are made. Surveys are sent. Then, the seemingly endless waiting between stages begins. The pace and progress of the research depends on the good will of others and their willingness to participate and/or assist the pursuit. Coming to terms with the idea that research is not a solo endeavor wherein I control the pace of the outcome has been difficult, dare I say, at times, painful. I am most comfortable when I can set a goal, outline the steps to reach that goal, and develop a concrete timeline for completing it. With minor adjustments along the way, the first two steps were manageable enough. The concrete timeline, however, proved to be a bit more challenging. Through navigating research as a dependent activity, I have been required to develop two attributes that I have discovered to be prerequisites for effective researchers—the ability to relinquish control and a respect for the process.

Reflecting upon the nature of the course work in this program after having completed the dissertation process, I can now appreciate the importance of the focus on group work. When I began course work, I was perfectly content to listen to the assignment instructions, absorb the materials being presented, and complete the related assignment. I saw very little benefit in complicating matters by including others in this process. The truth of the matter, as I now realize, was that group work challenged my aversion to relinquishing control. With solo study, I could establish a timeline for the process and execute the plan; if I failed to reach my goal, it was by my own doing. I did not have to wait for others to complete their parts before I could get on with my work.

The group work component slowly made me more comfortable in this type of dependent situation. I imagine that we were asked to work in groups to enhance our interpersonal skills as educational leaders, and I am sure that this was the partial purpose. However, it never occurred to me until I was midway through the dissertation process, that the ability to relinquish control would prove essential to my development as a researcher.

Though I could provide multiple examples of how the dissertation process has forced me to cede control, the data collection process stands as the primary example. After I submitted the surveys to the respondents, I waited. I checked the Qualtrics portal more often than I would like to admit. I noted that survey responses came in waves; the initial peak after a reminder email would steadily fall as the days passed. Once I had reached an acceptable response rate, I was able to relax a bit and enjoy the process. Moving to the qualitative section, however, ensured that I would once again struggle with the lack of control of the process and the resulting impatience. Not only did I have to now wait for individuals to volunteer for focus groups and interviews, I also had to accept the fact that I had no control of whether or not they kept their scheduled interview times. As it turned out, they did show up. Just as I had struggled with group work earlier in the program only to realize that it was not necessary to control every aspect of a situation, the research process further reinforced this lesson.

Researchers must have the larger research schema in mind while he or she is immersed in the sometimes-exhausting march through the multiple stages of the research process. Respect the process. This mantra, shared with me by a valued mentor, has far greater meaning to me now as I reach the final stages of the dissertation process. At every stage, I learned, I grew, and I transitioned from an intimidated student with no real

research experience to a confident researcher who realizes that there will be setbacks and difficult stages. However, if I respect the process, I will certainly see my way successfully through it.

Throughout the course work and dissertation processes, I gained content knowledge. I learned the foundations of educational theory and their application in the field. However, my greatest development as a scholarly practitioner did not come from a textbook or a classroom lecture. As I moved through each stage in the process, I grew in patience, knowing that every step forward was a victory. Though I didn't realize it at the beginning of the journey, the most rewarding outcome has not been a grade or a research outcome; rather, it is the realization that good outcomes are possible even if I am not in full control of the process of achieving them.

Appendix

Student Survey

1. Gender
   (a) Male _____
   (b) Female _____

2. Age
   (a) 18 – 21 _____
   (b) 22 – 26 _____
   (c) 27 – 31 _____
   (d) 32 – 36 _____
   (e) Over 36 _____

3. Have you ever taken an ITV course?
   (a) Yes
   (b) No

4. Please indicate how much experience you have had with taking classes via ITV:
   (a) I am currently enrolled in my first ITV course. _____
   (b) I have had two ITV courses. _____
   (c) I have had several ITV courses (3 or more). _____

5. Please indicate where you have taken the majority of your classes:
   (a) Main campus
   (b) Regional campus
   (c) Online
6. What is your current enrollment status?
   (a) Full-time (12 or more credit hours)
   (b) Part-time (fewer than 12 credit hours)

7. In the past year, how often have you attended a university sponsored event on the main campus?
   (a) Never
   (b) 1-2 times
   (c) 3-4 times
   (d) 5 or more times

Please indicate how much you agree with the following statements using the scale below with (a) indicating *strongly disagree* and (e) indicating *strongly agree*.
(a)----------(b)----------(c)----------(d)----------(e)--------
Strongly Agree Agree Neutral Disagree Strongly agree

8. I have difficulty corresponding with faculty who teach my ITV course.
9. I am often confused about the feedback that I receive from my ITV instructor.
10. My ITV instructors are competent at using the ITV equipment (turning on the machine, changing camera views, etc.)
11. I find the equipment, including the microphone, to be difficult to understand and use.
12. Classmates can be disruptive and can prevent me from concentrating in the remote sites.
13. I avoid asking questions from a remote site because I feel like I am interrupting the teacher.
14. My ITV instructors make an effort to visit each section of their ITV courses when possible.
15. My ITV instructors provide alternative means for conferencing with students at the remote sites (online platform, phone call, etc.)
16. I pay more attention to the classroom activities in face-to-face classes than I do in ITV courses.
17. I am more likely to participate by answering questions in my ITV course than in my face-to-face courses.
18. I am more likely to participate by offering comments in my ITV course compared to my face-to-face courses.
19. I desire more course offerings in a face-to-face format at the campus where I attend.
20. I am more likely to pose questions to my instructor in my ITV course as compared to my face-to-face courses.
21. I am more likely to request help in my ITV course as compared to my face-to-face courses.
22. I am more likely to debate a concept with a student in an ITV course as compared to a face-to-face course.
23. I am more likely to talk with my classmates about course material in my ITV course compared to my face-to-face courses.
24. My ITV instructors take the time to get to know me.

Faculty Survey

1. Have you ever taught an ITV course?
   (a) Yes
   (b) No

2. Please indicate how much experience you have had with teaching classes via ITV:
   (d) I am currently teaching my first ITV course. _____
   (e) I have taught two to five ITV courses. _____
   (f) I have taught multiple ITV courses (5 or more). _____

3. Please indicate where you teach the majority of your classes:
   (d) Main campus
   (e) Regional campus
   (f) Online

Please indicate how much you agree with the following statements using the scale below with (a) indicating *strongly disagree* and (e) indicating *strongly agree*.
(a)----------(b)----------(c)----------(d)----------(e)--------
Strongly agree Agree Neutral Disagree Strongly Disagree

4. Students have difficulty corresponding with faculty in an ITV classroom.
5. Students often seem confused about the feedback that they receive in an ITV classroom.
6. Students believe ITV instructors are competent at using the ITV equipment (turning on the machine, changing camera views, etc.)
7. Students find the equipment, including the microphone, to be difficult to understand and use.
8. Disruptive classmates can prevent students from concentrating in the remote sites.
9. Students sometimes avoid asking questions from a remote site.
10. I make an effort to visit each section of my ITV courses when possible.
11. I provide alternative means for conferencing with students at the remote sites (online platform, phone call, etc.)
12. Students pay more attention to the classroom activities in face-to-face classes than they do in ITV courses.
13. Students are more likely to participate by answering questions in my ITV courses than in my face-to-face courses.
14. Students are more likely to participate by offering comments in my ITV courses than in my face-to-face courses.
15. Students seem to prefer face-to-face courses.
16. Students are more likely to pose questions to me in my ITV courses than in my face-to-face courses.
17. Students are more likely to request help in my ITV courses than in my face-to-face courses.

18. Students are more likely to debate a concept with a student in an ITV course than a face-to-face course.
19. I am more likely to talk with my classmates about course material in my ITV than in my face-to-face courses.
20. I take the time to get to know my students.

Student focus group and student interview questions

Introductory Questions

1. Tell me about your experience taking ITV classes.
2. What pros, if any, do you see regarding ITV classes?
3. What cons, if any, do you see regarding ITV classes?
4. How is the learning experience different in an ITV class than in a face-to-face class?
5. Please describe ways in which ITV classes could be improved.
6. Please describe the characteristics of an effective ITV instructor.

Autonomy

7. What factors determine how willing you are to ask questions/make comments during an ITV class?
8. If you are hesitant to speak out in an ITV class, what do you think may be the reason for this?
9. Think back to the most positive experience you have had in an ITV classroom. Why was this particular experience positive?
10. Think back to the most negative experience you have had in an ITV classroom. What was this particular experience negative?
11. Please describe your experiences with student behavior in the ITV classroom.
    - If you or other students behave differently than in face-to-face courses, what do you think explains these differences?

Dialogue

12. How would you describe the level of dialogue between you and your ITV instructors during an ITV class?
13. How would you describe the level of dialogue between you and your ITV instructors outside of class?
14. How would you describe the level of dialogue between the students at the various campus sites during an ITV class?

Interpersonal Connections

15. How would you describe your sense of belonging to the university as a whole?
16. How would you describe your sense of belonging in your ITV classes?
17. What can ITV instructors do to ensure that students have a sense of belonging in an ITV class?

Faculty focus group and faculty interview questions

Introductory Questions

1. Tell me about your experience teaching ITV classes.
2. What pros, if any, do you see regarding the ITV platform as an instructional modality?
3. What cons, if any, do you see regarding the ITV platform as an instructional modality?
4. How do you differentiate your curriculum to adapt to the ITV platform?

Autonomy

5. How would you describe the level of student engagement with course material in your ITV classes?
6. How would you describe the level of student engagement with other students in your ITV classes?
7. How would you describe the level of student engagement with you as a faculty member in an ITV classes?
8. Please describe for me some of the methods that you use to engage students in the ITV classroom.
9. Please describe methods you use to ensure that remote site students stay engaged with the course material during ITV classes.
10. How would you describe students' willingness to ask questions and make comments in an ITV class?

Dialogue

11. How would you describe the level of dialogue between the instructor and students during an ITV class?
12. How would you describe the level of dialogue between the students at the various campus sites during an ITV class?

Interpersonal Connections

13. How would you describe your students' sense of belonging to the university as a whole?
14. How would you describe your students' sense of belonging in your ITV classes?
15. What can ITV instructors do to ensure that students have a sense of belonging in an ITV class?

VITA

The author, Misty Chisum, grew up in the region discussed in this dissertation. After high school, she began university work at the University of Maryland, European Division. She completed her bachelor's degree in English Education (5-12) at Drury University in Springfield, Missouri. She then served as a teaching assistant while pursuing a Master of Arts in composition at Southeast Missouri State University. The author completed this dissertation in partial fulfillment of the Doctor of Education at the University of Missouri.

After completing her master's degree, Misty returned to the area where she grew up to teach full-time at the post-secondary level.