

Self-efficacy and Isolation: Teaching Online

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Abstract

A quantitative non-experimental correlational study was done to explore the relationship of teachers in the first and second grade online classroom; teaching in isolation and the effect it has on their sense of self-efficacy. The questions that guided this quantitative non-experimental correlation study focused on the level of isolation felt by first and second grade teachers in a fulltime online school setting. How those reported levels of isolation affected the feelings of self-efficacy for those teachers. As well as what correlation did those reported levels have on their feelings of self-efficacy? By researching the correlation of teaching in isolation and its effect on self-efficacy, this researcher has contributed to the limited body of research in online education on teaching in isolation and self-efficacy at the first and second grade level.

1. Introduction

The purpose of this study was to explore the relationship between teacher self-efficacy and teachers who teach in isolation in the first and second grade online classroom. Specifically, it was an investigation into the characteristics of first and second grade teachers in full-time online programs and their self-perceptions of self-efficacy and feelings of isolation. The topic chosen for the proposed research study was important within the field of education for two reasons: a) the rapid growth of virtual elementary educational setting around the world and b) the need to develop future and current teachers' success in the online school setting.

2. Background and related work

2.1. Online Education

Before expanding on the theoretical foundations of this study, it makes sense to understand the background of online education. Online schools is a place where instruction occurs in which the students and teachers are separated by time and/or location, and students and teachers interact via computers and/or telecommunications. The schools can be publicly or privately funded and can offer only fulltime online programs or supplemental courses. Supplemental course programs are ones in which the

students enroll in an online program that is separate from the school for only a few classes a day. Fulltime online programs are those in which students attend 100% of their classes online and which do not have a physical facility (i.e., a school building) that requires students to attend classes onsite.

2.3. Digital Natives

Some of the factors contributing to the increase of K-12 online schools came from students themselves. Current students in the educational system have grown up surrounded by digital media. These students, who are referred to as "digital natives," are students who "are held to be active experiential learners, proficient in multitasking, and dependent on communications technologies for accessing information and for interacting with others" (p. 5) [1]. These "digital natives" know how to turn on a computer, access the web, search for content, and upload pictures all in a few clicks of the mouse, with no instructions needed. These students want more hands-on digital learning integrated into their education.

Based on the research above this researcher feels that the move from classroom-based learning to that of multimedia learning has placed greater demands on teachers. Students in the online setting are seeking more of a learning partner in education and not just facilitators of information. Teachers in the online setting have to move away from the daily face-to-face instruction model and into the online environment where a combination of asynchronous and synchronous learning environments is in use. This may be difficult for some teachers who transition from the brick and mortar setting into the online environment. With the removal of the daily face-to-face contact, teachers now working for the most part physically separated from other teachers could have an increase in feeling isolated and a decrease in self-efficacy.

2.4. Collaboration

In a traditional brick and mortar facility, teachers have the opportunity to congregate and collaborate routinely on a daily basis with other teachers and professional staff. However, in an online school setting, teachers are working away from a physical facility and, as a result, may feel isolated from other

faculty and have less potential for feedback on their effectiveness as a teacher. Their sense of self-efficacy and other qualitative individual assessments may diminish as the feelings of teaching in isolation take a greater hold [2] [3]. The question then becomes, in these types of settings where isolation is experienced, how much of the teacher's self-efficacy is affected by his/her feelings of isolation? In addition, if feelings of teaching in isolation lead to a decrease in self-efficacy, what steps can be taken to decrease feelings of isolation that will in turn increase self-efficacy in the online school setting?

2.5. Self-Efficacy

According to Bandura's [4] theory of teacher's self-efficacy, self-efficacy is broadly defined as the extent to which a teacher feels capable of helping students learn. Tschanen-Moran and Woolfolk Hoy [5] (2001) divided this broad statement of teacher self-efficacy into three main areas within the classroom setting: a) the confidence that the teacher can design and implement activities and assessments that will facilitate student learning, (b) the belief that a teacher can maintain classroom management practices that will sustain an orderly and self-regulating student body, and (c) a teacher's confidence that students will remain involved, motivated, and interested in the learning process.

This researcher postulates that these areas can also be easily transferred to the online setting in their totality to determine a teacher's sense of self-efficacy. For example, one area noted by Tschanen-Moran and Woolfolk Hoy [5] was the confidence that the teacher can design and implement activities and assessments that will facilitate student learning. In the online classroom, just like that of the brick and mortar setting, often instructional materials are premade to create a teacher-proof curriculum. In the classroom, a teacher can choose to provide enrichment activities and/or review concepts to ensure student learning which are outside the scope of the classroom curriculum. In the online classroom, the same can take place; however, the enrichment and/or review would come from online discussions or website games and not necessarily from textbook enrichment activities.

Another area noted by Tschanen-Moran and Woolfolk Hoy [5] is the classroom management piece of self-efficacy. In the online classroom setting, the teacher must continuously monitor student chat while giving lessons, just like teachers in a face-to-face classroom where group table talk is monitored to ensure the students are staying on task. Clearly teacher confidence also is important in the online setting to ensure that lesson design motivates students to continue working without the motivational guidance of the teacher in close proximity to the student. However, in the brick and

mortar setting, the teacher can learn how to accomplish these elements by peer coaching or watching how other faculty modifies instruction or management. In the online setting, however, teachers who are often working physically separated from other teachers may not have the same benefits to interact with their peers as in the brick and mortar setting. Therefore, their sense of self-efficacy may decline as teaching in isolation increases.

2.6. Self-efficacy and brick and mortar

There is a great deal of research and literature devoted to self-efficacy and working in isolation as it relates to teachers and students in the online higher education setting [6] [7]. However, little research and literature is devoted to online instruction as it relates to self-efficacy on the part of the teacher or student in grades K-12.

Traditionally, "teacher preparatory" certificate programs have focused on the "face to face" or brick and mortar type teaching. However, many of the theories and practical application of teaching online require a different pedagogical approach to teaching. Current faculty at teacher preparatory programs in general do not have the vision, skills, or knowledge to implement the needed courses to prepare the online instructor. In part this is because the online instructor is a relatively new phenomenon and it will take several decades to change how we teach teachers to teach.

Lack of faculty knowledge about online education theory and its practical application in teacher preparatory schools become a large obstacle to the development of a teacher's feelings of self-efficacy in the online school setting. The reason is that "a high sense of teacher self-efficacy begins early in preparation programs as candidates begin to develop teaching confidence and competency" [8]. Furthermore, teachers whose experiences and academic knowledge are based on teaching in a traditional brick and mortar school setting may experience a greater sense of isolation and lower feelings of self-efficacy when they move to the online classroom. Teachers may not have the theory and practical application to reflect upon when problems such as classroom management and fundamentals of learning are presented in the online setting. Moreover, teachers as professionals control their own classroom autonomously, act relatively independently of their colleagues, and work closely with their students. With the removal of the student from daily contact, the sense of self-efficacy that was built from the previous education and experience in the brick and mortar setting may diminish over time in the online school setting. Previous experiences become less transferable to the new teaching environment. When previous successes diminish over time, a teacher may have a sense of lower self-

efficacy, which could be exacerbated by the feelings of isolation due to the physical separation from peers.

2.7. Isolation

Online teaching in and of itself is isolating. A teacher no longer has direct contact with a student or other teachers. The teacher cannot see a student's reaction to the learning taking place and may have a difficult time reacting to and assessing the needs of the student. In addition, the teacher may be physically separated from daily contact with peers and the peer coaching that normally takes place in the brick and mortar setting. Finally, a teacher in the online school may feel a greater sense of isolation when the how and what that are needed to motivate a student towards the learning process are removed because of distance and/or time of instruction. None of these factors, taken individually or in their totality, is identified in teacher preparatory schools when online learning is discussed. [9]

One way to characterize the features noted above about the isolation in online teaching is to connect them to the social component of teaching. When the social aspect of teaching is removed, i.e., when teachers work in settings away from peers and colleagues, it can affect a teacher's sense of self-efficacy. Teachers often glean ideas of what works and what doesn't work from one another. When working in isolation, the "gleaning" of ideas may be limited and therefore lead to lower self-efficacy. For example, this "gleaning" of ideas can help a teacher who may be having classroom management issues and/or who has students who are in need of extra support or extended learning activities. In turn, when a teacher is able to support another peer, his or her self-efficacy may rise because the teacher may feel a greater sense of achievement with what is working in the classroom. This transference of ideas may be limited when working in a setting physically separated from other peers and therefore may reduce a teacher's sense of self-efficacy.

3. Research questions

There were four research questions that guided this study:

1. What is the level of isolation felt by first and second grade teachers teaching fulltime in an online setting?
2. What are those same teachers' levels of self-reported feelings of self-efficacy?
3. Is there a correlation between the first and second grade teachers' reported levels of isolation while teaching in online setting and those same teachers' reported levels of isolation when they taught in the brick and mortar setting?

4. To what extent do first and second grade teachers' levels of self-efficacy from previous brick and mortar experiences transfer to the online school setting?

3.1. Research design

The research design used was a quantitative quasi-experimental correlational study. A quantitative non-experimental correlation study was the appropriate design for this study because it allowed the researcher to explore the association between variables. Causation was not tested.

This research study examined if a change in the independent variable, teaching in isolation, predicted change in the dependent variable, a teacher's feelings of self-efficacy. In addition, this study examined if changes in the independent variable, teaching setting (online or bricks and mortar), predicted a change in the dependent variable, self-efficacy. By conducting a quantitative non-experimental correlation study, the researcher reported results, drew conclusions and reported generalizations regarding the impact of teaching in isolation on teachers' levels of self-efficacy. Even though this research study identified feelings and attitudes of online teachers, which may seem more appropriate for qualitative research, the use of an instrument such as a Likert scale, which is quantifiable, allowed this researcher to conduct a correlational study. By using a correlation study this researcher was able to study the relationship between the two variables in this study: teaching isolation and self-efficacy.

4. Method

4.1. Survey

The data collection for this study was a cross-sectional survey that examined current attitudes, beliefs, options, and practices among first and second grade fulltime online teachers. The survey consisted of questions from the Woolfolk Hoy Teacher Efficacy Scale [10] in conjunction with created questions from this researcher. In 2001, Tschannen-Moran and Woolfolk Hoy [10] developed the Teacher's Sense of Efficacy Scale. This instrument is intended to survey three factors related to self-efficacy: efficacy for student engagement, efficacy for classroom management, and efficacy for instructional strategies.

The participants of the survey by Tschannen-Moran and Woolfolk Hoy [10] completed a 9-point Likert scale model, ranging from 1, Nothing, to 9, A great deal to rank their self-efficacy related to 12 teaching-related tasks (e.g., How much can you do to control disruptive behavior in the classroom?). The total scores reported from the teacher self-efficacy scale correlated positively with the personal teacher

efficacy factor ($r = .48$, $p < .01$) and the general teacher efficacy factor ($r = .30$, $p < .01$). Individual item score correlations were not reported.

This researcher noted that in order to use the teacher self-efficacy scale by Tschannen-Moran and Woolfolk Hoy (2001) [10] for this research, it needed to be modified to fit the online teaching classroom. For example, in the original survey by Tschannen-Moran and Woolfolk Hoy (2001) [10] the questions regarding classroom management were:

- 1) "How much can you do to control disruptive behavior in the classroom"?
- 6) "How much can you do to get children to follow classroom rules"?
- 7) "How much can you do to calm a student who is disruptive or noisy"?
- 8) "How well can you establish a classroom management system with each group of students?"

These questions were modified by this researcher to fit the online classroom and read as follows:

- 1) "How much can you do to control disruptive behavior in the virtual classroom if you use programs such as Adobe Connect (virtual teaching classrooms or any other synchronous teaching platform)"?
- 6) "How much can you do to get students to follow classroom rules (i.e., honor codes, turning work in on time, completing assignments, taking tests, etc.)"?
- 7) "How much can you do to get students to believe they can do well in school work"?
- 8) "How well can you establish a classroom management system with each group of students in the virtual classroom if you use programs such as Adobe Connect (virtual teaching classrooms or any other synchronous teaching platforms)"?

The numbers used above are the 12 items as numbered on the Tschannen-Moran and Woolfolk-Hoy [10] short form Teacher Self-Efficacy Scale.

As noted, modifying the original instrument by Tschannen-Moran and Woolfolk Hoy [10] was essential because the original scale was not designed for use by online teachers, especially as related to the classroom management factors. Teachers in the online setting cannot "see" a student to make eye contact for non-verbal cues of appropriate and inappropriate behavior.

There were four of the 12 questions in the original survey from Tschannen-Moran and Woolfolk Hoy (2001) [10] that this researcher felt were applicable to keep in their original context. For example; items 2, 3, 4 and 11 on the teachers' sense of self-efficacy scale refer to a teacher's feelings on how to motivate students to do well in school and instill in the student a value of learning. These values and feelings are, in this researcher's opinion, foundations of good teaching regardless of the instructional environment and therefore they were included.

The overall content of this study's survey consisted of three sections: a) demographics, b) teaching in isolation and c) feelings of self-efficacy. The first section, demographics (questions (1-11) were used to determine whether those taking the survey matched the criteria of this research study, i.e., the respondent was someone who teaches, or has taught, in an online telecommuting setting in first or second grades and was someone who had taught first and/or second grades in a brick and mortar setting prior to teaching first and second grades fulltime in an online setting. The respondents who did not match the minimum qualifications for this study were removed from this study.

Questions 12 and 13, and 39 through 49, focused on measuring the teachers' feelings of teaching in isolation. The questions were broken down into questions from the brick and mortar teachers' experiences (14 to 26) and the online teachers' experiences (12 and 13, 27 to 59). The questions about isolation were used to answer the following research question that guides this study: What is the level of isolation felt by online first and second grade teachers?

Questions 14 through 38 and 50 through 57 were used to measure self-efficacy in brick and mortar and online teaching settings. The questions were centered on the "how" aspect of teaching, for example, how much can you as a teacher control disruptive behavior in the classroom.

Using the premade template from Zoomerang allowed this researcher to include open-ended responses for questions 53-57. The open-ended questions allowed the respondents to report their perceptions of online education, working in isolation and self-efficacy beliefs.

The use of the survey by Tschannen-Moran and Woolfolk Hoy [10] also measured non-content related items. This is important to note because often online courses are pre "made"; content of the course is taken directly from the textbook and converted into an online format in the K-12 field [11]. The teacher oftentimes has limited ability to modify lessons to meet the needs of each student in the course room [12].

4.2. Survey Instrument

1. Are you currently teaching this school year?
2. According to your teaching contract/offer letter, do you currently teach full time or part time?
3. Looking back on your whole teaching career, what is the total time you have been teaching? (both bricks and mortar and online)
4. Of the amount of time listed in question 3, of those how many years and months have you taught in an online school?

5. Of the amount of time listed in question 3, of those how many years and months have you been/or taught in a “bricks and mortar” school?
6. Please indicate what grade level(s) you have taught in the “bricks and mortar” school setting? (one in which you teach students in a physical classroom) along with how long (years/months) you taught at that grade level.
7. Please indicate what grade level(s) you have taught in the online school setting (one in which you taught student via computer or other type of telecommunication setting) along with years/months taught at that grade level.
8. Are you currently teaching at a public or a private school?
9. Are you currently teaching at a fulltime online school?
10. Please indicate your gender
11. Please indicate your age:

If you are currently teaching full time for an online K-12 school, complete questions 12 through 14.

If you are not currently teaching in an online school, please skip to Question 15.

12. What percentage of time do you work at home or away from a central office, where no other teachers are present?
13. What percentage of time do you work in a school building and/or someplace where other teachers are present?
14. Approximately how many students do you have in your classroom?

Please indicate your opinion about each of the questions below by marking any one of the responses, ranging from “Nothing at all” to “A Great Deal”. Please respond to each question by considering the combination of your current ability, resources, and opportunity to do each of the following in your present position.

Bricks and Mortar Teachers - As you complete the following questions, think about your experiences teaching in a physical classroom, face to face, with students.

15. How much can you do to control disruptive behavior in the classroom?
16. How much can you do to motivate students who show low interest in school work?
17. How much can you do to calm a student who is disruptive or noisy?
18. How much can you do to help your students value learning?

19. To what extent can you craft good questions for your students?
20. How much can you do to get students to follow classroom rules?
21. How much can you do to get students to believe they can do well in school work?
22. How much can you establish a classroom management system with each group of students?
23. To what extent can you use a variety of assessment strategies?
24. To what extent can you provide an alternative explanation or example when students are confused?
25. How much can you assist families in helping their children do well in school?
26. How much can you implement alternative teaching strategies in your classroom?
27. To what extent does it matter that as a teacher you have easy access (to watch, view, learn from) to another teacher's classroom?
28. How often do you actively seek advice (professional) from fellow teachers?
29. How often do you have communication from your school's main office and/or administration?
30. How often do you have communication from your direct supervisor?

Online Classroom Teachers: As you complete the following questions (31 through 64), think about your experiences teaching in the online classroom environment.

31. How much can you do to control disruptive behavior in the virtual classroom if you use programs such as Adobe Connect or Elluminate (or any other virtual teaching classrooms or synchronous teaching platforms)?
32. How much can you do to motivate students who show low interest in school work?
33. How much can you do to calm a student who is disruptive or noisy in the virtual classroom if you use programs such as Adobe Connect or Elluminate (or any other virtual teaching classrooms or other synchronous teaching platforms)?
34. How much can you do to help your students value learning?
35. To what extent can you craft good questions for your students?
36. How much can you do to get students to follow classroom rules (i.e., honor codes, turning work in on time, completing assignments, taking tests)?
37. How much can you do to get students to believe they can do well in school work?
38. How well can you establish a classroom management system with each group of students in the virtual classroom if you use programs such as Adobe Connect or Elluminate (or any other

- virtual teaching classrooms or synchronous teaching platforms)?
39. To what extent can you use a variety of assessment strategies?
40. To what extent can you provide an alternative explanation or example when students are confused?
41. How much can you assist families in helping their children do well in school?
42. How well can you implement alternative teaching strategies in your classroom?
43. To what extent does it matter that as an online teacher you may not have easy access (to watch, view, learn from) to another teacher's classroom?
44. To what extent does it matter that you are not physically in the same place as other teachers?
45. Does your online school have "recess" break times during the day in which you can communicate freely with other teachers?
46. Does your online school have online "chat" in which you can ask questions to other teachers (such as instant message, discussion forum, non-technical help desk)?
47. How often do you actively seek advice (professional) from fellow teachers?
48. How often do you have communication from your school's main office and/or administration?
49. How often do you have communication from your direct supervisor?
50. How is online teaching different from bricks and mortar teaching (possible areas to think about are curriculum, assessment, staff development, peer support but please note whatever comes to mind)?
51. Comparing online teaching with brick/mortar teaching, rate the extent to which you feel connected with your students
52. How much can you get to know your students in the online setting?
53. When a student problem arises (e.g., grading or honor code, etc.), how much support do you get from coworkers or administration?
54. How easy is it to share ideas with other teachers re: problem situations in the online setting?
55. How would you rate your computer skills?
56. How do you react when asked to use technologies that are new to you?
57. When there are technology issues that arise, how much does it affect your ability to teach?
58. In your opinion, what are the biggest stumbling block in using technology in teaching online school?
59. In your opinion, what prior technology skills are essential to be successful as an online teacher?
60. In your opinion, what prior teaching skills are essential to be successful as an online teacher?
61. In your opinion, what teaching skills are essential to be successful as an online teacher?
62. In your opinion, what is the greatest benefit of teaching online?
63. In your opinion, what is the biggest obstacle(s) in teaching online?
64. Please provide any other comments you may have about online teaching.

5. Participants

The participants for this study were gleaned from online user groups located on LinkedIn and Yahoo. The demographics for these user groups met the requirements for this study: elementary school teachers who were teaching online and had taught in the bricks and mortar school setting. Of the 126 total respondents who completed the survey, 89 responses (71.2%) met the minimum requirements for the study: (1) Currently teaching, or have taught, fulltime in an online setting in first or second grades, and (2) Have taught first and/or second grades in a bricks and mortar setting prior to their fulltime online first and second grade teaching. Those who did not meet the minimum requirements were not included in the data analysis section of the study. Information from the 89 respondents who met the minimum requirements was gathered regarding their feelings of self-efficacy and working in isolation.

6. Results and discussion

6.1. Demographics

In this study, the overall results showed the respondents to be in their late 20s to early 50s, predominantly female, who taught full time in an online public school at home and away from a central office, where no other teachers are present. The average number of total teaching years was 11.86, with 4.06 of those years in the online setting. The range of the total number of students in the online classroom was from a low of 28 students to a high of 72 students; the average number of students per online classroom was 50.88 students. These findings on the years of teaching experience are consistent with other research studies [13]. In their study of 899 online K-12 teachers, Dawley reported that only 2% (surveyed were) brand new to teaching and 14% were new to online teaching. Fifty-six percent of the teachers had between six to fifteen years of total teaching experience, with 24% reporting 16 or more years of teaching experience. The majority of respondents had been online teachers from one to five years [13]. The average class size of 50.88 and most of the teachers being female were not surprising findings. Keeping Pace with K-12 Online Learning; An annual Review of Policy and Practice [14]. This report noted that the average online early elementary class size was 50 and the overall gender of online teachers in the early elementary grades was

female. Based on the research previously done of teacher demographics which is consistent with the demographics of the respondents in this study, it appears reasonable that the findings in this study can be generalized to the population of online first and second grade teachers.

6.2. Research Question One

Research question one was designed to determine to what extent the online teacher felt isolated: What is the level of isolation felt by first and second grade teachers teaching fulltime in an online setting? The hypothesis that first and second grade teachers who teach fulltime in the online school setting will report feeling isolated was confirmed. The Pearson r correlations revealed that teachers do feel isolated when working away from other teachers, a school office and their direct supervisor. This was found by correlating the percentage of time working from home and how much or how important it is that teachers can communicate freely amongst one another ($r = -0.992$), have online chat opportunities ($r = -0.930$), seek professional advice from other staff ($r = -0.972$), have communication from main office ($r = -0.967$) and have communication between their direct supervisor ($r = -0.987$). The strong negative correlations between the variables confirmed that the more time teachers spend at home away from other teachers and office/administration the more they feel isolated.

Moreover, the descriptive statistics of the Likert type scale response items supported the findings in the Pearson r correlation metric on feelings of isolation for the online teacher. Seventy-one percent of the respondents stated they had very little communication from the school's main office and/or administration and 73% stated they have very little communication from their direct supervisor. These percentages are consistent with the findings from the Pearson r in which the lack of communication from other teachers, school office and a direct administrator support the hypothesis that online teachers do feel isolated.

This confirmation of the hypothesis for research question one an online teacher has limited or no direct contact with a student, other teachers and often has limited contact with a main office, which can all lead to feelings of isolation. Hargreaves [15] called this type of isolation, constrained isolation. Working from home or not within a central office is not necessarily by choice, as is often seen in online teaching among teachers who work in different parts of a state or in a different state away from the school office and other teachers. When a teacher is isolated from fellow faculty who work in another location, either as a result of chance or choice, it results in constrained isolation [15]. This constrained isolation

is apparent by the responses to the survey question "What percentage of time do you work at home or away from a central office, where no other teachers are present?" Ninety percent of the respondents stated they work 76% to 100% of the time away from a setting where other teachers are present.

Online teacher can feel isolated when they cannot see a student's reaction to the learning taking place. As a result, teachers may have a difficult time reacting to and assessing the needs of the student and this may increase the teachers' feelings of isolation. When asking respondents in this study, "In your opinion, what is the biggest obstacle(s) in teaching online?", several of the responses reported that the feeling of being isolated was the biggest obstacle when teaching online. They could not help a student who needed help immediately. The student would need to wait to call the teacher on the phone, and when they did it was next to impossible to guarantee the student understood the explanation given [16]

All of the above identified factors, working away from other teachers, a school office and direct supervisors as well as away from the students, resulted in an online teacher feeling isolated. This is not surprising. From this researcher's perspective, teaching is a social profession, one in which teachers talk amongst themselves at school. It is true that bricks and mortar teachers can close their classroom doors and work in isolation, but for the most part they still communicate with other teachers, the school office and a direct supervisor on a daily basis. In the online setting, many of the social aspects of the profession are for the most part removed. For online teacher, not having daily physical contact with other teachers, the school office and direct supervisor all lead to a feeling of being isolated.

6.3. Research Question Two

Research question two focused on self-efficacy: What are those same teachers' levels of self-reported feelings of self-efficacy? The hypothesis that those first and second grade teachers who teach online fulltime who reported feelings of isolation will report a low level of self-efficacy was confirmed. The Pearson r correlation metric along with the descriptive statistics of the Likert type scale items and open-ended response items consistently showed a relationship between responses measuring working in isolation and lower feelings of self-efficacy. The accepted hypothesis is consistent with the research of Gibson and Dembo (1984) who stated that a teacher's self-efficacy is directly related to the environment in which they teach. Those teachers who have a higher level of self-efficacy believed that they can manipulate their environment to ensure students have success. In the online environment, little manipulation can take place as noted in the open-ended research questions where the theme of

the responses was centered around the drawbacks in teaching online, limited flexibility with the curriculum and presentation of lesson materials. One responded reported that, "In the classroom I was able to change up lessons as my students needed redirection. In the online school I have little ability to change lessons or modify to fit their needs." [17]

The Pearson r correlation metrics supported that teachers in the online school setting who work in isolation do have a lower level of self-efficacy. The correlations between working from home (in isolation) and a) having control over classroom behaviors, b) the ability to calm a student down who is disruptive, c) get students to follow classroom rule, d) establish a classroom management system as well as e) a teacher's ability to motivate students, have student's value learning and f) believing they can do well in school, g) craft good questions for students and h) use a variety of assessment strategies were all moderate and negative correlations. This means that when working in isolation, teachers believe they cannot change or help students learn, cannot control the learning environment or cannot instill a value in the learning process for the student which all lead to a lower sense of self-efficacy for the online teacher. In essence what the data reveal is that the more time a teacher spends working in isolation, the lower was their self-efficacy. This is consistent with research done on self-efficacy who note that when a teacher has confidence in his/her ability to promote students' learning, then the teacher has a sense of high self-efficacy.

Goodard [18] noted "efficacy beliefs are about the future... students will succeed given enough school based support." If teachers believe that they can make a difference in the future learning of a student, they may have higher self-efficacy. In the online school setting, "future" is limited. That is, the one-on-one support provided by the teacher or other members of the school staff to increase the future success of the student learning ability is limited or non-existent. This limited ability to see a student's future learning was noted in this response from a respondent on the survey: "I am not really a teacher, I help parents teach their children, but I don't know if it is done right. I don't know if the student is learning and making progress. Sure I can ask questions over the phone about stories read and math problems they should know. But I never know if a student is actually learning all the materials, its hard giving up control of the teaching aspect in the online setting."

When teachers work in isolation away from other teachers, a school office, their direct supervisor and their students, they feel isolated. When a teacher feels isolated they in turn have a lower level of self-efficacy. This is because the teacher can no longer manipulate the teaching environment, glean ideas off of other teachers and for the most part they do not

feel supported from the main office or their direct supervisor. When all of these are taken in their entirety the effect is a lower level of self-efficacy for the online teacher who feels isolated.

6.4. Research Question Three

Research question three was designed to see if those teachers who reported feeling isolated when working online feel more/same or less isolated in the online setting than when they did in the bricks and mortar setting. Was there a correlation between the first and second grade teachers' reported levels of isolation while teaching in online setting and those same teachers' reported levels of isolation when they taught in the brick and mortar setting? The hypothesis was that fulltime online first and second grade teachers will report a higher level of isolation teaching in the online setting compared to when they taught in the brick and mortar setting. Use of the Pearson r correlations and the descriptive statistics of the Likert type items along with the open-ended response questions all supported the hypothesis. Teachers did feel more isolated when teaching online than they did in the bricks and mortar setting.

Teachers often teach in isolation by choice even when there are opportunities to work in collaboration with other teachers. Part of this is because of the demands placed on teachers to raise test scores or other accountability measures the school has taken. However, this form of isolation is vastly different from the isolation that transpires in the online school setting. In the bricks and mortar setting, teachers still have opportunities to meet with and talk with other teachers (yard duty, lunch duty and professional development with before and after school meetings). In the online school setting the only real opportunity is if the online teacher chooses to chat with others via phone or instant messenger. There are no or very few day-to-day opportunities to physically be in the same place as other teachers when you work online. Respondents reported that even though they had opportunities to use online "chat", only 21% reported using it quite a bit. Thirty percent reported using it to "some degree" and 32% reported using online chat very little. Further support for the isolation was in Question 47 on the survey, where 68% of the respondents reported that they did not actively seek advice from other teachers. In conclusion, the descriptive statistics of the Likert type items respondents reported that even when they are provided the opportunity to have communication with other teachers, that because of the nature of online teaching, working in isolation, they chose to not actively seek advice from fellow teachers. This is consistent with the findings from the Pearson r correlations.

The Pearson r correlation matrix showed that there were weak and not significant relationships

between feelings of isolation in the bricks and mortar school and access to watch another teacher, seek advice from fellow teachers and communication from main office and direct supervisor. This was in contrast to that of the online teachers who reported a high level of isolation. The more time spent away from other teachers, administration and their direct supervisor, the more isolated they felt. Several questions on the survey were used to target feelings of isolation felt by the online teacher versus that of the bricks and mortar teacher: the ability to speak with and work with other teachers, communication with the school office and communication from a direct supervisor. In the question that asked if teachers actively seek advice from fellow teachers, for the bricks and mortar teacher, there was no correlation between seeking advice and feelings of isolation for the bricks and mortar teacher. This was the direct opposite from the feelings of the online teacher who did not actively seek advice and felt isolated. As well, there was no correlation between feelings of isolation for the bricks and mortar teacher and having contact with their school office. However, for the online teacher there was a significant relationship between feelings of isolation and no contact with the school office. Finally, a correlation was used to see if limited contact from a teacher's direct supervisor resulted in isolation. When the teachers responded about their experiences teaching in the bricks and mortar setting, there was a positive correlation between the more contact they had from their direct supervisor and how isolated they felt. For the online teacher, the less contact they had from their direct supervisor, the more they felt isolated.

Teacher isolation was defined as teachers who are physically separated from other teachers. This autonomous, independent work, whether it occurs as a result of choice or circumstance, results in seclusion. As we can see from the results of both the Pearson r correlation metrics and the open-ended and Likert type descriptive statistics, teachers in the online school setting who worked in isolation felt more isolated than their bricks and mortar counterparts.

6.5. Research Question Four

Research question four was designed around self-efficacy to see to what extent the online teacher could transfer previous self-efficacy felt in the bricks and mortar school to that of the online school: To what extent do first and second grade teachers' levels of self-efficacy from previous brick and mortar experiences transfer to the online school setting? Hypothesis 4, that the reported levels of self-efficacy among first and second grade teachers would be less compared to when they taught in the bricks and mortar setting, was affirmed.

The Pearson r correlation metrics showed a correlation between responses associating no transfer of self-efficacy felt in the bricks and mortar school to that of the online school. The correlation metric noted that the relationship between variables intended to measure levels of self-efficacy in the bricks and mortar setting and those same variables in the online setting (the ability to calm a student down who is disruptive, get students to follow classroom rule and establish a classroom management system) were all moderately negative correlations. This means that the longer a teacher works in isolation, the lower their self-efficacy will be. Teachers who work in isolation in the online setting noted that they have little management control over their students in the online setting. Their self-efficacy is lower as self-efficacy is a teacher's belief that they are having some degree of control in the classroom which promotes learning. This was in contrast to the bricks and mortar teachers. When using those same variables, they reported a high level of self-efficacy. Moreover, the correlations between working from home in isolation and a teacher's ability to motivate students, have students value learning and believing they can do well in school (self-efficacy) also were moderate and negative. This was again in contrast to those variables used to measure self-efficacy for the bricks and mortar teacher, which noted a high level of self-efficacy when working in the bricks and mortar setting. What this essentially means is that when working in an online school, teachers do not believe they can change or help learning in the classroom by adapting the curriculum as needed. In contrast, the bricks and mortar teacher does believe she can change the lessons and adapt the learning when needed. Therefore, the level of self-efficacy for the online teacher was lower compared to when they taught in the bricks and mortar setting.

These findings are consistent with the research done by Martin [19] who stated that the theory and practical application of teaching that is based on the bricks and mortar setting cannot necessarily be transferred over to the online setting. For example, the online teacher no longer can physically see a student understand a concept or help a student immediately when they are struggling. The teacher must rely on the student to contact them when they need help.

One item that cannot be overlooked when looking at self-efficacy for the online teacher compared to that of the bricks and mortar teacher is the use of technology. As a respondent stated, "When the technology fails you fail as well because you can't help your students as the books etc. are online." When technology fails, teachers have a decrease in their ability as a teacher to effectively teach a lesson on the computer, which may in turn decrease a teacher's sense of self-efficacy. For the bricks and mortar teacher, the levels of self-efficacy

experienced in that setting cannot be compared with online teachers because bricks and mortar teachers are not dependent on technology in the classroom. The level of self-efficacy for the bricks and mortar teacher concerning technology in this researcher's opinion would deal with their sense of ability or efficacy in terms of how to incorporate technology into the daily classroom activities. This is, as said above, the complete opposite for the online teacher who relies on technology for the delivery, support and overall teaching of lessons. Therefore, while technology can play a large part in the online teachers' feelings of self-efficacy, it cannot be measured against their bricks and mortar counterparts and therefore while interesting, it was not used in the measures of self-efficacy in this study.

7. Conclusion

The conclusion of this research study confirmed the hypotheses for all four research questions presented in this study. Data analysis and descriptive analysis showed that greater feelings of working in isolation predicted decreased feelings of lower self-efficacy for the online teacher.

8. Recommendations and future work

The results of this study lead to specific recommendations for future practice for online elementary schools.

Recommendation 1: Online elementary schools should provide a time, at least monthly, where teachers can meet each other in a face-to-face setting to decrease feelings of isolation. These meetings could be of professional nature or for staff to bond. The focus should be on getting teachers talking and removing or reducing the feelings of isolation that are associated with working from home.

Recommendation 2: Form an online personal learning community or Communities of Practice. These may help decrease feelings of isolation when meeting face-to-face is not possible. These types of group activities offer a place for teachers to discuss current trends in education and provide a time for teachers in general to gather online.

Recommendation 3: Administration should reach out to teachers in the online setting. This could be in the form of an email or personal phone call. The key is to let the teachers know there is someone at the main office to support them in their teaching role.

Recommendation 4: Alternative teaching opportunities (physical books and not e-books) should be made available when technology issues arise for the teacher and student. This is important because when technology goes down so does learning if all of the course materials are online. If

course materials are offline as well, then the learning can pick up where it was left off. For the teacher this would help with being able to support students at times in which the online materials are not available as well as provide different learning modalities students who prefer to sit down with a book.

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