

OPEN EDUCATIONAL RESOURCES IN MISSOURI PUBLIC SCHOOLS:
A PHENOMENOLOGICAL STUDY OF THE ADOPTION PROCESS

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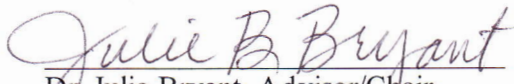
2021

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OPEN EDUCATIONAL RESOURCES IN MISSOURI PUBLIC SCHOOLS:


A PHENOMENOLOGICAL STUDY OF THE ADOPTION PROCESS

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OPEN EDUCATIONAL RESOURCES IN MISSOURI PUBLIC SCHOOLS:
A PHENOMENOLOGICAL STUDY OF THE ADOPTION PROCESS

A Dissertation
Presented to
The Faculty of the Graduate Education Department
Southwest Baptist University

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Education

By

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April, 2021

ACKNOWLEDGMENTS

I have literally spent years thinking about having the opportunity to type this page. Some people possess certain characteristics which are better suited to the dissertation process than others. Fortunately for me, I have been blessed with people who have helped make up for my shortcomings, and I would like to share my sincere gratitude.

First, I must thank my family. John, the love of my life, thank you for putting up with this journey. I truly do not deserve God giving me you, but I am so thankful he did. I owe you several years, and I will do my best to get you paid back. Jake and Ashley – I am blessed to have two amazing children. I think the three of you were positive this would never be finished, but I thank you for never saying so. (Okay, we know you said so, but it was certainly deserved.) To my dad and mom – thank you for always giving unconditional love. Dad, I know you are not here to see this completed, but I also know it is just a thing. You were proud of me no matter what. I thank you for teaching me to put God first, to remember that material things do not matter, and to honor your commitments. I appreciate those lessons more with every passing year.

Thank you to all of the great educators in my family and in my educational journey who have been such beautiful examples. Thank you to my friends, my extended family, and my school family for your encouragement and kindness. Thank you to a great accountability partner, Cynthia, whose advice of “Nothin’ to it but to do it!” proved to be so true. To Karen -- thank you for being my cheerleader. To Christa and Rhonda – you have always been great blessings in my life, but I will never be able to repay the last year.

To the participants in this study – thank you!! Each and every participant was kind, helpful, and encouraging. Thank you for taking the time to participate in the study. I learned so much from each one of you.

And a special thank you to my editor, Linda. Never did I realize how much I would need and learn from an editor. Thank you, Linda, for your knowledge, helpfulness, and flexibility.

To my dissertation committee – I'm sorry and thank you. I am sorry for the many challenges I presented, and I thank you for all you have done. Dr. Fong, your expertise and your feedback opened my eyes to things I could not see. Dr. Shuler, your insights, ideas, and encouragement kept me moving forward and allowed me to overcome challenges along the way. And, Dr. Bryant, thank you is not enough. The things I learned and gained from you go so far beyond this dissertation. Thank you not giving up on me. Blessings to you always.

And, finally, to the OER community. Thank you for all I have learned about open educational resources and for all I will continue to learn. Those who believe that knowledge is meant to be shared are changing lives and changing the world.

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ABSTRACT

According to the UNESCO (2017) definition, open educational resources (OER) are “teaching, learning, or research materials that are in the public domain or released with intellectual property licenses that facilitate the free use, adaptation, and distribution of resources.” Because awareness and utilization of OER is sporadic and inconsistent, the researcher designed this study to explore why, how, and to what degree OER adoption had occurred in Missouri school districts. Participants for the study were identified and selected as a result of signing on with the U. S. Department of Education’s #GoOpen campaign. The purpose of this phenomenological study was to understand the personal experiences of district leaders and what influenced the decision to adopt. Participants included a district leader from 10 of Missouri’s 13 #GoOpen districts. The central question that guided the study was: What influenced the decision to formally adopt OER in Missouri’s #GoOpen districts? The researcher utilized components of Rogers’ (2003) diffusions of innovations theory to guide the study and analyze the findings. The findings from this study revealed three themes that had a direct impact on the rate and degree of OER adoption: 1) a need for time and professional development, 2) a focus on reallocation of money rather than saving money, and 3) the need to lead OER adoption with systems and policies instead of relying on an OER advocate. Findings from the study can benefit educators and school districts, can influence state and national organizations advocating for OER, and can impact OER policy development.

CHAPTER ONE

INTRODUCTION

The time period in which we currently learn, work, play, rest, and exist is referred to as the Information Age. Through the use of digital technologies, news, ideas, images, social interactions, and more can be quickly transmitted around the world in a matter of seconds (Calara, 2020). Like many sectors of society, the field of education has changed and continues to change with advances in digital technologies. Open educational resources (OER) are one of the changes taking shape in this age, and school districts are faced with the challenge of deciding how, when, or whether to implement this new innovation.

As evidenced by the printing press and the World Wide Web, changes in technology have historically revolutionized the way education and learning transpire (Maddux, Liu, & Johnson, 2008). In the late 20th century and early 21st century, the OER movement emerged as a transformative technology that has the potential to revolutionize how educational materials are developed, utilized, and most importantly, shared (Bliss & Smith, 2017). OER include all of the learning, teaching, and research materials that are freely available to the public or available to the public with a permanent permission for use (Bliss & Smith, 2017).

As often occurs with technological advances, the advances can be a reflection of, or response to, needs in society. Restriction of work, materials, books, and more due to copyright laws has been questioned over the last 2 decades (United Nations, 2020; Wiley, 2017). A growing worldwide community has endorsed a culture of openness and the

creation of new licensing, which allows for sharing, reusing, and often even improving educational materials and resources (Bliss & Smith, 2017; Wiley & Green, 2012).

Despite studies (de los Arcos, Farrow, Pitt, Weller, & McAndrew, 2016; Hilton, Larsen, Wiley, & Fischer, 2019; Kimmons, 2015; Morales & Baker, 2018; Robinson, Fischer, Wiley, and Hilton, 2014) that demonstrate the benefits and positive outcomes of OER implementation, K-12 school districts have been slow to make formal adoptions. Further studies report the struggles associated with more widespread adoption of OER that include lack of awareness, lack of access, and lack of sustainability (Allen & Seaman, 2017; de los Arcos et al., 2016; Senack, 2015; Tang, Lin, & Qian, 2020). The federal government's #GoOpen campaign was introduced to encourage and support adoption in schools and states (Mulholland & Roscorla, 2016), but it has yet to reach a majority of districts. In Missouri, 13 school districts have made the commitment to sign on as #GoOpen districts; however, Missouri is not one of the 20 #GoOpen states. Communication and planning are reported to be key contributors to awareness and implementation of OER, yet only nine states have included OER in their state plans detailing their visions and goals (Tepe & Mooney, 2018).

Studies have shown that OER are being utilized and are beneficial (Hilton et al., 2019; Kaufman & Campana, 2019; Robinson et al., 2014); however, they are often being used sporadically, inconsistently, and unintentionally (Allen & Seaman, 2017; Martin & Kimmons, 2020; Tang et al., 2020). Other studies point to obstacles that occur when trying to implement OER, making management difficult, time-consuming, and inefficient (Allen & Seaman, 2017; Havemann, 2016; Johnson, Adams Becker, Estrada, & Freeman, 2014; Ozdemir & Bonk, 2017). A gap exists in the research regarding the lag in diffusion

and adoption of OER in K-12 school districts and what influences the decision to adopt process. This phenomenological study explored the lived experiences of a district leader in each of the 13 school districts in Missouri that voluntarily signed on with the U. S. Department of Education's #GoOpen campaign to utilize OER. The study investigated how and to what degree adoption took place and attempted to identify shared themes and patterns for understanding what influences OER adoption.

In Chapter One, the researcher will introduce the theoretical framework that was utilized to guide this study and will explain why further research regarding K-12 adoption of OER is needed. The researcher will also explain the problem, the purpose of the study, and research questions to be investigated. The significance of this qualitative study regarding OER adoption will be addressed. The researcher will also discuss the limitations, delimitations, and assumptions associated with this study and the steps taken to control them. The chapter will close with an explanation of the key terms that were used throughout the study.

Theoretical Framework

Understanding how and why individuals, organizations, and societies adopt new ideas has been the subject of many studies (Atkin, Hunt, & Lin, 2015; Botha-Ravyse & Blignaut, 2017; Petrun, Iles, Roberts, Liu, & Ackerman, 2015). According to Everett Rogers' (2003) diffusion of innovations theory, new ideas are not adopted by everyone in a social system at the same time. It takes time for an innovation to diffuse, and the rate and degree to which it diffuses is impacted by human interactions. In the field of education, adoption of innovations is not only impacted by individuals, but it is also impacted by organizational structures and government agencies (Rogers, 2003). The

work completed by Rogers served to guide this study and was utilized as a tool in examining responses from research participants. Because Rogers' diffusion theory is extensive, it is important to examine the various elements and components of his theory and how they can help explain the diffusion and adoption of OER. Of specific interest related to OER adoption in the #GoOpen districts were the Innovation-Decision Process (knowledge, persuasion, decision, implementation, and confirmation) and the Perceived Attributes of Innovation (relative advantage, compatibility, complexity, trialability, and observability; Rogers, 2003) and what roles they played throughout the adoption process in each district.

Rogers' (2003) Perceived Attributes and Innovation-Decision Process are central in understanding the rate and degree of OER adoption. Rogers explained that the perceived attributes can be utilized to understand the adoption rate of a given innovation. The perceived attributes are relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). Each attribute contributes to the relative speed a new innovation does or does not spread. Relative advantage considers whether the innovation is perceived by users as being better than what they had (Rogers, 2003). Compatibility looks at how closely an innovation matches the users' values, experiences, and needs (Rogers, 2003). The perceived ease or difficulty of use of an innovation is defined by its complexity, and the **rate** of adoption is explained by the complexity-simplicity continuum developed by Rogers. According to Rogers, trialability is "the degree to which an innovation may be experimented with on a limited basis" (p. 258). And finally, observability impacts the rate of adoption based upon how much others can discern the results of the adopted innovation (Rogers, 2003).

The Innovation-Decision Process is another important component of Rogers' (2003) theory and is defined as "an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation" (p. 172). The steps of this process are knowledge, persuasion, decision, implementation, and confirmation. Typically, each of the steps follows in order. During the knowledge stage, the potential adopter learns about the innovation and tries to understand why it works and how it works (Rogers, 2003). Rogers explained that during the persuasion stage, the user develops a positive or negative opinion about the innovation. In the decision stage, the user decides to adopt or reject the new idea (Rogers, 2003). Following the decision stage, implementation results in the innovation being put to use (Rogers, 2003). Rogers explained that problems during the implementation stage can be much more problematic to organizations than to individuals because many more users are involved in carrying out the implementation, and some may be resistant to the change. This can be utilized in examining the OER decision process at the organizational level of school districts. While an individual might be excited to implement OER, effective district-wide adoption requires buy-in from all stakeholders. The final stage is confirmation. Confirmation is a time when the user seeks support and reinforcement for the adoption; however, it is also a time when negative feedback can lead to the adoption decision being reversed (Rogers, 2003).

The Perceived Attributes and Innovation-Decision Process provide better understanding of how awareness, access, and sustainability can affect OER adoption. In addition, it is important to remember that positive outcomes and perceived and realized barriers both affect adoption decisions. These components of Rogers' diffusion of

innovations theory will be utilized in later chapters when analyzing interview data, reporting findings, and making recommendations.

Problem Statement

An imbalance exists according to the research showing the usefulness and availability of OER versus the level of OER adoption (Havemann, 2016; Martin & Kimmons, 2020). Blomgren (2018) found research taking place frequently in higher education but found a gap in the research for K-12 OER, with substantially fewer published studies. According to the *NMC Horizon Report* (Johnson et al., 2014), OER would be leading K-12 educational technology adoption in three to five years. While progress has been made, formal district-wide adoption and state support of OER are irregular and inconsistent.

OER are transforming many college courses and even a few college institutions and degrees (Mathewson, 2017; Wiley, 2010); yet the *Horizon Report* (Brown et al., 2020) still listed OER as an emerging technology. Hindering widespread OER curriculum adoption are misunderstandings and inconsistencies in K-12 school districts regarding what is needed and what is available, due in part to the top-down way curriculum materials are purchased (Mathewson, 2017). Because administrators are making the majority of purchasing decisions, their lack of awareness and understanding of open educational resources has hindered K-12 OER adoption (Wiley, Hilton, Ellington, & Hall, 2012). In Chapter Two, the researcher will provide a review of current literature to further support the need for additional research regarding OER adoption.

Purpose of the Study

The purpose of this phenomenological study was to understand the personal experiences of district leaders and what influenced the decision to formally adopt OER in Missouri's #GoOpen districts. The researcher analyzed shared experiences from the participants to identify why districts determined OER were a viable option, how adoption processes were initiated and conducted, and the outcomes regarding OER adoption. The data were further analyzed utilizing Rogers' (2003) diffusion of innovations theory in order to understand why, how, and to what extent OER has diffused. Participants included a district leader from each of Missouri's 13 #GoOpen districts who was directly involved in the district's process to formally adopt OER. It was the researcher's intent, through this qualitative study, to add to the body of research regarding how OER adoption takes place in K-12 school districts.

While studies demonstrate the usefulness and positive outcomes of adopting OER (Hilton et al., 2019; Kaufman & Campana, 2019; Kimmons, 2015; Robinson et al., 2014), research to understand what leads to an OER commitment and how to initiate the adoption process is lacking. It is acknowledged that planning takes months, if not years, and a team approach is needed (Office of Educational Technology, n.d.; Walhausen, 2016). What is not fully defined or described in current research is what leads a school district to initiate the use of OER and how the implementation of OER takes place.

Research Questions

This phenomenological study explored the lived experiences of district leaders in Missouri's 13 #GoOpen districts. In order for researchers to avoid altering what is meaningful and significant to each participant, a qualitative study is typically guided by a

central question (Creswell, 2014; Moustakas, 1994). This study was guided by the following central question: What influenced the decision to formally adopt open educational resources in Missouri's #GoOpen districts? The following subquestions helped frame the study and guide the interviews as needed:

1. What circumstances influenced the awareness of OER?
2. What key players influenced the decision to explore OER?
3. What actions influenced the adoption of OER?
4. What obstacles influenced the rate and degree of adoption?
5. What outcomes were observed following OER adoption?

Significance of the Study

A notable gap exists in the research regarding the process of adopting OER (Otto, 2019). The aim of this study was to respond to the gap in the body of research by examining what factors are influencing the decision to pursue or to decline formal adoption of OER in K-12 school districts. Findings from this study could benefit educators, school districts, and policymakers as they examine and consider the OER adoption process.

Because phenomenological research is based on understanding and describing the lived experience of a phenomenon, it is an appropriate approach for studying user experiences with technology like OER (Cilesiz, 2011; Martin & Kimmons, 2020). Through the study, the researcher can uncover what was successful and what created barriers, what can benefit educators and school districts that are considering adoption, and what policy makers need to know regarding changes for the future. The United States government has already changed requirements for its grant programs regarding open release and

sharing of resources created with public funds (South, 2017); therefore, it would be beneficial to all to have a greater understanding of what it means to be open and what it takes to make that transition.

Limitations

As with any study, variables outside of the researcher's control can occur. The limitations for this study were the following:

1. individual participant perspectives,
2. potential for participant drop-out or unwillingness to participate,
3. varying degrees of leadership roles or time in the roles and varying degree of OER knowledge of participants,
4. inability to meet in person for interviews due to COVID-19 pandemic, and
5. researcher perception and possible bias.

Delimitations

To narrow the scope of the research, the delimitations that helped set the boundaries for this study were as follows:

1. The study was delimited to Missouri public school districts that had made a district-wide commitment to use OER as indicated by #GoOpen.
2. The study was delimited to districts that were part of the #GoOpen initiative including Missouri's #GoOpen Ambassador Districts and Missouri's #GoOpen Launch Districts.
3. The study was delimited to identified district leaders in charge of the OER adoption process.

4. The study was delimited to a phenomenological study to focus on experiences of participants.
5. The study was delimited to a semi-structured interview protocol.
6. The study was delimited to Rogers' diffusion of innovations as the guiding framework to shape the study and examine the findings.

Assumptions

The following assumptions for this study were made:

1. It was assumed that each participant interviewed answered thoughtfully and honestly.
2. It was assumed that each participant interviewed was equipped to provide informed and accurate information.
3. It was assumed that the researcher would not influence the data or its interpretation and would remain unbiased since this qualitative study was not guided by a hypothesis.
4. It was assumed that verifying the interview transcripts with member checking would ensure accuracy of the data.
5. It was assumed that uncovering patterns and themes in the data would help explain the phenomenon being studied including its rate and degree of adoption.

Design Controls

A qualitative phenomenological approach was used in this study to investigate how and to what degree OER adoption took place. Through the study, the researcher looked to identify shared themes and patterns for understanding what influences

successful OER adoption. While research can be affected by limitations, delimitations, and assumptions, the following design controls were utilized to help protect the quality and validity of the study.

In order to help control the limitations of potential unwillingness to participate and potential lack of OER knowledge, purposeful sampling was utilized to select participants due to shared experience with the phenomenon (Creswell & Poth, 2018) and included district leaders from each of Missouri's #GoOpen Ambassador Districts and Missouri's #GoOpen Launch Districts. Because Missouri was not a #GoOpen state and only 13 Missouri districts were part of the #GoOpen network (Office of Educational Technology, n.d.), learning about and implementing OER were district decisions. Understanding the specific, lived experiences of these district leaders was important to understanding how OER implementation occurs, and the vested interest in the process made them less likely to be unwilling or unable to participate. The researcher recognized that turnover takes place in school districts; therefore, the individual interviewed in each district was not always the person to initiate OER investigation. Also, varying degrees of expertise existed from district to district. Although limiting to some extent, both of these characteristics were important to the phenomenon being studied because understanding and awareness of OER is a noted hindrance to implementation (Allen & Seaman, 2017; de los Arcos et al., 2016). Because of COVID-19 restrictions, the inability to meet in person was addressed through Zoom conferencing and utilizing Otter and Otter Live Notes to record and transcribe the interviews.

Regarding the delimitations put in place by the researcher, participants selected were individuals from each #GoOpen district who were recognized as in charge of OER

implementation and adoption. A phenomenological approach was selected in order to specifically understand the experience of the individuals and use the responses to reveal patterns and themes regarding how implementation took place. Qualitative research is focused on producing rich, in-depth information to understand the phenomena being studied through synthesis and interpretation rather than quantified data in quantitative research (Korstjens & Moser, 2017; Queirós, Faria, & Almeida, 2017). Because phenomenological research focuses on the lived experiences of the participants, interview questions were not strictly followed and instead were guided by the subset of questions as needed (Moustakas, 1994). Although completing interviews in person was preferred in order to help establish a trusting atmosphere, the researcher utilized social conversation (Moustakas, 1994) at the start of each interview to help create a relaxed atmosphere. To help ensure trust, participants were notified of their anonymity. Participant names were not listed in the transcripts, and school districts were identified as District A, District B, and so on. The researcher selected Rogers' (2003) diffusion of innovations theory as the guiding framework for the study and to review the findings due to its longstanding use in research to explain how and at what rate and degree ideas and innovations spread through a population.

It was the goal of the researcher to complete an unbiased phenomenological study regarding the adoption process of OER in Missouri #GoOpen districts. Because phenomenology is not based on a hypothesis but is based on understanding, it was assumed the researcher would be unbiased toward the findings. In order to help ensure accuracy and transparency, the researcher utilized bracketing, which included reflective journaling, in order to set aside any preconceived ideas or previous knowledge and focus

on the lived experiences of the participants (Moustakas, 1994). In order to eliminate potential researcher bias and improve validity, the researcher utilized triangulation of the data through member checking in which participants were provided transcripts following interviews to check for accuracy, through multiple reviews of the session recordings to check for accuracy, and through artifact collection in each district regarding timelines, planning materials, professional development plans, and budgets to validate interview responses.

Definition of Key Terms

The definitions of the key terms used throughout this study are listed below.

#GoOpen. The campaign initiated by the U. S. Department of Education in 2015 to encourage and support the adoption of open educational resources (McShane, 2016).

Open Educational Resources (OER). The “teaching, learning, or research materials that are in the public domain or released with intellectual property licenses that facilitate the free use, adaptation, and distribution of resources” (UNESCO, 2017, para. 1).

Open Licensing. License granted by content creators that gives users the ability to retain, reuse, revise, remix, and redistribute materials without the worry of copyright infringement (Creative Commons, 2020; Morales & Baker, 2018).

Repository. A digital library to curate open educational resources (South, Ishmael, & Song, 2018).

Traditional Textbook. A commercial textbook protected by copyright laws (Price, 2019; Wakefield, 1998).

Summary

Reviewing and selecting textbooks and supplementary resources and materials is an expensive, time-consuming process in many school districts. Open educational resources are changing that process in some school districts and states; however, widespread OER adoption has not yet occurred (Ganapathi, 2019; Jung, Sasaki, & Latchem, 2016; Tang, 2020). The purpose of this phenomenological study was to understand the personal experiences of district leaders and what influenced the decision to formally adopt OER in Missouri's #GoOpen districts. The overall lack of awareness and understanding of OER has hindered diffusion; however, some school districts are choosing to initiate formal OER adoption (Hilton et al., 2019; Kaufman & Campana, 2019; Lieberman, 2018). Further research is needed to understand the phenomena taking place in #GoOpen districts regarding OER and if it leads to understanding, utilizing, and adopting OER. This study was framed by Rogers' (2003) diffusion of innovations theory as it explained how and why innovations spread. Based on the patterns and themes gathered through the interviews and data collected, the results were analyzed utilizing Rogers' theory in order to understand why, how, and to what extent OER has diffused.

In Chapter Two, the researcher will provide a review of literature organized topically beginning with the diffusion of innovations theory, which framed the study. Next, the topics of traditional learning materials in schools and sharing in education will be reviewed in order to explain the background for OER development. The history of OER and the OER movement will be presented. District OER adoption will be reviewed in preadoption, adoption, and postadoption phases. Multiple studies and reports that affect adoption decisions in each phase will be covered. In addition, the literature review

includes research and information on how the government is taking steps to require and advocate for the use of OER. Throughout the literature review, components of Rogers' (2003) diffusion of innovations theory will be utilized to connect the topics presented from the research with the potential impact on the rate and degree of OER adoption.

In Chapter Three, the researcher will provide a detailed explanation of the methodology used to conduct the study. In Chapter Four, the researcher will present the results and findings of this qualitative study, which was conducted utilizing the approach of phenomenology and applying components of Rogers' diffusion of innovations theory. In Chapter Five, the researcher will conclude the study with a summary, interpretation of the findings, and recommendations for next steps and future research regarding OER adoption.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In today's world, students have access to entire libraries, databases, college courses, and more in the palm of their hands. Digital technologies have transformed our lives but are only just beginning to transform our schools. OER are an innovation that might be a catalyst for that transformation; however, more information is needed (Blomgren & MacPherson, 2018). Just as OER adoption in K-12 districts is lacking, so is the research regarding why and how school districts navigate the OER adoption process (Malbon, 2019; Otto, 2019). Although OER are readily available and studies show their effectiveness, most educators, districts, and states do not know about or understand OER and open licensing (Wiley & Hilton, 2018). While further research continues to emerge, overall research regarding open educational resources in K-12 education is still sparse (Malbon, 2019). As research is completed and shared with key stakeholders, informed decisions on how and when to adopt open educational resources can be made.

Understanding and applying copyright law was a complex task even before digital technologies became prevalent in all areas of society (Havemann, 2016). "All rights reserved" is a common phrase that has been used for over one hundred years (Cox, 2018). It is often used in conjunction with "copyright" or "copyright protected" and communicates that something is owned, guarded, and not allowed to be shared (Tonks, Weston, Wiley, & Barbour, 2013; Wiley, 2017). Until the 1990s, nearly all educational resources, materials, and books were only thought of as proprietary and for-profit. During a United Nations Educational, Scientific and Cultural Organization (UNESCO) meeting in 2002, OER were defined, and a movement began to emerge (D'Antoni, 2009).

According to the latest UNESCO (2017) definition, OER are “teaching, learning, or research materials that are in the public domain or released with intellectual property licenses that facilitate the free use, adaptation and distribution of resources” (para. 1).

OER not only provide financial savings to school districts, but OER also promote customization, sharing, efficiency, relevancy, and accessibility (Wiley, 2017). Through the open licensing of educational resources, all users are granted the permission to:

Retain -- the right to make, own, and control copies of the content.

Reuse -- the right to use the content in a wide range of ways.

Revise -- the right to adapt, adjust, modify, or alter the content itself.

Remix -- the right to combine the original or revised content with other material to create something new.

Redistribute -- the right to share copies of the original content, your revisions, or your remixes with others (Wiley & Hilton, 2018, pp. 2-3).

With these permissions, materials and content can be adapted to student needs and become meaningful resources to fuel student engagement.

Today’s students have access to new and changing information 24 hours a day. Relying on traditional textbooks, which are costly and can be in use in many districts from 6 to 10 years, equates to a lack of understanding and appreciation for how these students learn and interact (Allen & Seaman, 2017; Scudella, 2013). Utilizing OER benefits students in many ways including relevant materials, unrestricted access, and personalized learning, which can include engaging videos, graphics, simulations, animations, and more (Fletcher, Schaffhauser, & Levin, 2012; Zhang & Li, 2017).

Educators at all levels are often uninformed about OER and misunderstand how they can be used (Allen & Seaman, 2017; Martin & Kimmons, 2020). In order to address the lack of awareness and lack of understanding regarding OER adoption in K-12 school districts, efforts like the U. S. Department of Education's #GoOpen campaign have been created (Mulholland & Roscorla, 2016). Even with these tools and support, implementation is inconsistent and sporadic.

Because of the inconsistent implementation and adoption of open resources, it is important to understand what the literature reveals. Chapter Two is organized around the central research question of the study: What influenced the decision to formally adopt open educational resources in Missouri's #GoOpen districts? Current literature reveals that research is lacking in understanding the rate and degree of adoption in K-12 school districts. Chapter Two includes additional components of the diffusion of innovations theory. Throughout the literature review, the components have been applied to OER studies and the impact that can occur on rate and degree of diffusion. Next, the researcher provides information on traditional learning materials in schools and how sharing in education helped create the need for OER. The history of OER and the OER movement are examined. Studies influencing OER adoption are reviewed and are divided into preadoption, adoption, and postadoption phases. The review of literature concludes with changes from the United States government regarding taxpayer-funded research and development and openness requirements for grant recipients and efforts to inform school districts and states about OER through the #GoOpen campaign. Rogers' (2003) diffusion of innovations theory will be utilized throughout the literature review in order to demonstrate how it underpins the study and the research reviewed. Components

of the Innovation-Decision Process and Perceived Attributes of innovation are connected to the topics presented in the literature review and help explain how the topics covered can affect the rate and degree of OER adoption.

Diffusion of Innovations

With new technology or a new innovation comes the opportunity for change; however, full adoption is not always reached (Otto, 2019). In order to better understand why adoption does or does not occur, Rogers' (2003) diffusion of innovations theory is an effective lens. Perkins (2011) contended the diffusion framework is effective in examining wider adoption and needed sustainability of open educational resources. Perkins utilized Rogers' theory of perceived attributes in examining OER adoption and asserted that future research should utilize additional components of the diffusion theory when exploring OER adoption.

In contrast, Orr, Rimini, & Van Damme (2015) maintained the classic diffusion of innovations theory is too limited to apply to the multifaceted OER movement. However, in that study, the focus was primarily on Rogers' Adopter Categories over time -- innovators, early adopters, early majority, late majority, and laggards (Orr et al., 2015). While the Adopter Categories are important components to consider, complex innovations like OER adoption require further investigation and consideration, and one should consider the Innovation-Decision Process and the Perceived Attributes of Innovation to gain a more comprehensive understanding.

The diffusion of innovations theory set forth by Rogers (2003) can help explain the dissemination, or lack thereof, regarding new ideas and new technologies. Because of the current lag in widespread adoption of OER (Otto, 2019), understanding the specific

phenomena occurring in each #GoOpen district was essential in order to analyze themes and shared experiences. Identifying themes from the participants' lived experiences utilizing a phenomenological approach contributes to the body of research concerning OER adoption and provides an explanation regarding why, how, and to what extent OER has diffused. Therefore, the focus of this study was on understanding and building meaning out of the participants' experiences, and the researcher reexamined the diffusion of innovations theory when analyzing the research findings.

Traditional Learning Materials in Schools

Rogers' (2003) first perceived attribute is relative advantage, and it considers whether the innovation is perceived by users as better than what they previously had. Early in the American education system, the resources utilized by teachers were referred to as schoolbooks (Wakefield, 1998). Instruction relied heavily on repetition and memorization. By the mid-1800s, the goal of teaching focused more on understanding, and the development of the textbook helped aid in that change (Wakefield, 1998). Textbooks continued to have an important role in the classroom, which has led to a multi-billion-dollar industry (Price, 2019; Yano & Myers, 2018).

According to the Association of American Publishers, the revenue earned by publishers for preK-12th-grade instructional materials in 2018 was nearly \$3,500,000,000 (Price, 2019). In contrast to the high cost of commercial textbooks, the cost to distribute an online version of a textbook over the Internet is around .0007¢ (Wiley, Hilton, et al., 2012). Delivering instructional content to a student via a digital format allows for substantial savings and access to current material (Johnson et al., 2014).

Because of the huge costs associated with textbooks, purchasing these instructional materials is typically done by districts on a rotational basis by subject area every 6 to 10 years (Allen & Seaman, 2017). Commercial textbooks are not only costly to district budgets, but potentially even costlier to student learning due to the out-of-date content. Traditional textbooks are problematic due to cost, inability to customize, and failure to adequately engage students (Johnson et al., 2014; Wiley, Hilton, et al., 2012).

Today's youth are growing up fully immersed in images, videos, information, digital technologies, and online social interactions. Various names have been given to the generation that grew up utilizing computers, cell phones, the Internet, video games, and many other tools and devices; however, a fitting name was designated by Prensky (2001) in calling them "digital natives" (p. 1). Their experiences make interacting, sharing, and collaborating a part of their everyday lives. In order to be effective, those in the field of education must understand and adapt to this new generation of students and learn how best to engage the digital natives (Prensky, 2001). Utilizing open educational resources not only provides up-to-date information, but use of OER also allows for the remixing and differentiation of materials, which facilitates the individualized learning that keeps this generation of students engaged (de los Arcos et al., 2016; Fletcher et al., 2012).

When evaluating and selecting textbooks and instructional resources, education leaders routinely check alignment to current standards (Mathewson, 2017). Alignment to standards and usability are commonly referred to when rating and selecting instructional materials, yet finding out this information for a multitude of materials can be time consuming and labor intensive. To help in the reviews and evaluations, education leaders

often utilize nonprofits like EdReports and reviews from state educational agencies (Mathewson, 2017; Tepe & Mooney, 2018). According to these sources, OER are often rated as top-aligned, but it will be important to continue evaluating open curriculum as it becomes available (Tepe & Mooney, 2018).

Additional research was completed by Kimmons (2015) in which 30 K-12 teachers compared textbook evaluations; the evaluations were completed on traditional copyright-restricted textbooks, open textbooks, and open textbooks that had been adapted. The researcher found that both open and open/adapted textbooks scored higher than copyright-restricted books in the various areas, which included content accuracy, alignment, formatting, supplements, and in overall scores (Kimmons, 2015). Along with usability and alignment, researchers have studied student perceptions and attitudes (Morales & Baker, 2018) and teacher perceptions (de los Arcos et al., 2016) regarding the use of OER. Sixth- through eighth-grade students from five Oklahoma middle schools were surveyed. The results of the survey were positive, with 81% of the student respondents indicating “we should have more OER” (Morales & Baker, 2018, p. 7). Furthermore, a study of 657 teachers found over 68% agreed or strongly agreed that student interest and satisfaction with the learning experience increased with the use of OER (de los Arcos et al., 2016).

Determining what textbooks and resources to use varies from district to district and from state to state. In the United States, each state determines how textbooks are selected for their schools using one of two methods (Scudella, 2013). Using the first method, states known as textbook adoption states approve textbooks at the state level. The second method of selection is delegated to local school boards. Missouri is one of 30

states that utilizes local approval and adoption (Scudella, 2013). Because of the local autonomy, a wide range of instructional materials is used throughout Missouri school districts. This range not only includes the opportunity to select traditional textbooks, but it also provides districts with the opportunity to adopt OER. Determining when and if to make the change to OER finds potential adopters at the first step of Rogers' (2003) Innovation-Decision Process, knowledge, where they are learning about the innovation and deciding why it works and how it works.

Sharing in Education

Compatibility is the second perceived attribute of diffusion theory, and it looks at how closely an innovation matches the users' values, experience, and needs (Rogers, 2003). According to David Wiley (2010), a pioneer in the OER movement, "The only legitimate role for new media and technology in education is to increase our capacity to be generous with one another. Because the more open we are, the better education will be" (p. 20). At the root of the OER movement is the belief that knowledge is meant to be shared (Havemann, 2016; Tonks et al., 2013; Wiley, 2010). The entire process of education is about sharing. Someone has to share something they know, whether directly or indirectly, intentionally or unintentionally. Because of the growth and availability of digital content, that sharing and reusing and revising of knowledge is easier now than ever before (D'Antoni, 2008; Martin & Kimmons, 2020).

Various ways of sharing and collaborating have been developed and used in educational settings. In the 1990s, a practice based on community and collaboration became popular. Professional Learning Communities (PLCs) were developed in schools and districts in order to foster relationships among educators and encourage working

together to help students reach academic success (Hord, 1997). Through the PLC framework, educators worked collaboratively to share ideas and develop lessons. While the communities and networks were localized, they were based on sharing and supporting in order to benefit students in much the same way that OER now works, although on a much larger scale, which creates a global community (Van Allen & Katz, 2020).

Although sharing takes place in all areas of education, when it comes to resources and materials, some of that sharing costs money while some of it is free. Over time, a great deal of money has been spent on education, and many areas of education are established specifically as for-profit businesses (Ken, 2014; Price, 2019). In an effort to support and amplify free sharing, open educational resources were created (Morales & Baker, 2018; Open Education, 2020). In contrast, Teachers Pay Teachers is sharing by and for teachers through a private company that was created in 2006 (Teachers Pay Teachers, n.d.; Walthausen, 2016). As of November 2020, Teachers Pay Teachers had over 3,000,000 resources available and had been utilized by over 5,000,000 teachers during the past year (Teachers Pay Teachers, n.d.). While a few items are available for free, the majority cost from \$1.00 to \$40.00; additionally, some resources are only available for reuse and not for revising for individualized needs (Walthausen, 2016). Even within the Teachers Pay Teachers community, a division exists between those who choose to make money off the resources they are sharing and those who share their work with a Creative Commons (CC) license making it free for others to use, edit, and share the work (Schwartz, 2018). Sharing is common among educators; however, a consensus on what to share and how to share has yet to be fully reached. Depending on a user's

values, experiences, and needs, sharing could influence the user to consider OER, thereby moving them to the persuasion step of Rogers' (2003) Innovation-Decision Process.

Open Educational Resources (OER)

History of OER. The belief that education is sharing, and knowledge is meant to be shared is not a new thought. Over two hundred years ago, Thomas Jefferson wrote in a letter:

That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density in any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation (Lipscomb & Bergh, 1907, p.43).

Like the fire and the air that Jefferson wrote about, knowledge and ideas can be shared without lessening their effectiveness. In an effort to learn from others and make the most of the resources already available, the idea of freely sharing educational resources began to take shape in the 1990s (Bliss & Smith, 2017; eLearning, 2015).

The change which was emerging was rooted in the universal belief that access to high quality educational resources should be a right available to all. Beginning with California State University's creation of MERLOT (Multimedia Educational Resource for Learning and Online Teaching) in 1997 and David Wiley's proposed free and open content license in 1998, the open movement started to take shape (Bliss & Smith, 2017). Educators and institutions were looking for ways to make education accessible to all, and leaders ready for the transition to open educational resources began to emerge.

In 1999, the University of Tübingen in Germany made lectures available online and free to view (eLearning Infographics, 2014). Also in 1999, the faculty at Massachusetts Institute of Technology (MIT) began discussing how to utilize the Internet to promote its courses for use by anyone, anywhere in the world. Leaders at MIT put forward the idea of having full courses online and available at no charge; by 2002, MIT had published 50 courses (Massachusetts Institute of Technology & Carson, 2006). Also in 2002, at the UNESCO Forum on the Impact of Open Courseware for Higher Education in Developing Countries, the title Open Educational Resources (OER) was officially created (Butcher, Kanwar, & Uvalic-Trumbic, 2015). These openly licensed, freely accessible resources can include textbooks, materials, videos, software, modules, assessments, tools, and even full courses (Bliss & Smith, 2017; Wiley & Hilton, 2018).

OER movement. The overall intention of the OER movement is to allow anyone, anywhere digital access to up-to-date, high-quality learning resources (Mathewson, 2017; Otto, 2019). Standing in the way of that access are traditional copyrights for which the “primary purpose is to prohibit individuals and organizations from sharing creative works unless they have procured (frequently expensive) permission” (Tonks et al., 2013, p. 259). Open licensing removes copyright restrictions and provides the needed permissions (Morales & Baker, 2018; Open Education, 2020). Because OER allow free permission for materials to be retained, reused, revised, remixed, and redistributed (commonly referred to as the 5 Rs), textbooks no longer have to be outdated (Open Education, 2020); changes can be made in real time.

In order for a work to be freely and openly shared, it must have an open license. Creative Commons was established in 2001, and its first licenses were released in 2002

(Wiley & Gurrell, 2009). With the use of a CC license, content creators can grant users the ability to retain, reuse, revise, remix, and redistribute materials without the worry of copyright infringement (CC 2020; Morales & Baker, 2018). Once a resource is licensed as OER with a CC license, the user can freely use the material based on the permissions granted. As of July 2020, over 1,600,000,000 works have been licensed with CC.

Because so many open educational resources have been created and shared, it can become burdensome to find the exact materials to meet user needs. In order to help save time and make searching easier, online repositories have been created to help organize and manage the resources (Tepe & Mooney, 2018; Tate, 2018). Some OER repositories have been created by individual states while other popular repositories include OER Commons, CK12, OpenStax, and Khan Academy (Van Allen & Katz, 2020). The difficulty locating and accessing resources can serve as an obstacle that hinders or even halts further inquiry into OER adoption and can end progression on the Innovation-Decision Process (Rogers, 2003). In the next three sections, the adoption process will be looked at in phases, and the potential benefits as well as the challenges to adoption will be reviewed. The phases will be considered as preadoption, adoption, and postadoption. In addition, Rogers' (2003) Perceived Attributes of innovation and the Innovation-Decision Process will be reviewed throughout the phases to connect to the current literature on OER and how the diffusion process is impacted.

OER Adoption Process

Of the limited research that has been completed on OER, the majority has focused on the benefits of OER use (Al Abri & Dabbagh, 2018). Educators express interest and willingness to utilize OER (Martin & Kimmons, 2020); however, reservations remain

when it comes to the complexity of the adoption process and sustaining adoption (Otto, 2019). Furthermore, additional studies are needed that examine the adoption process as it relates to stakeholders and organizations instead of a limited focus on those advocating for and already utilizing open educational resources (Al Abri & Dabbagh, 2018).

Preadoption of OER—incentives and obstacles. Prior to committing to a new innovation, potential incentives and obstacles are considered (Perkins, 2011). Accurate content that is available and affordable to all with OER is a potential motivator (D’Antoni, 2009). Instructional improvements and new practices impacting overall effectiveness require appropriate, up-to-date resources and support (Lunenburg, 2010), which are available with OER. In addition, the significant financial savings can be an incentive to drive OER implementation. Despite the incentives of OER use, obstacles not overcome can discourage users and even prevent investigating and experimenting with these digital resources (Martin & Kimmons, 2020). Although OER have been around for over twenty years, lack of awareness continues to hinder more widespread adoption (Ganapathi, 2019; Senack, 2015; Tang, 2020).

Potential encouragement to K-12 school districts to adopt OER includes greatly reducing costs associated with traditional textbooks and providing access to needed resources in underserved schools (Johnson et al., 2014). OER are effective in reducing the massive spending that happens with traditional textbooks and instructional materials, thus freeing up money for other objectives (U. S. Department of Education, 2017). Marcinek (2018), the former chief open education advisor at the U. S. Department of Education, stated that the primary need for OER is to ensure that equity is available to every student and that students in all districts have access to needed resources. Open

educational resources are effective tools to address challenges that school districts face including accessibility, budget shortfalls, up-to-date content, and equity (Bali, Cronin, & Jhangiani, 2020; Johnson et al., 2014).

Specific studies regarding the monies saved in K-12 districts are lacking (Forgette, 2020); however, based upon higher education research, substantial savings occur when open educational resources are used instead of traditional textbooks. Clinton (2018) reported an undergraduate student in an introductory psychology course could save over \$80 by utilizing an open textbook while achieving the same or better learning outcomes. In North Dakota, the state auditor detailed total savings over \$1,000,000 by more than 15,000 students utilizing open education resources in North Dakota's public universities over a 2-year period (Lieberman, 2018). In order to be efficient and effective with tax dollars allocated to education, policy leaders can require that public-funded materials and resources be openly licensed and available for the 5R activities by all (Wiley, Green, & Soares, 2012). Providing affordable, equitable resources to all students, teachers, and districts is a possible draw to OER and may persuade some to move further on the Innovation-Decision Process (Rogers, 2003).

In contrast to the potential benefits, lack of awareness and understanding present obstacles when considering a new innovation. The overall lack of awareness and understanding of OER can cause school districts to discontinue further investigation (Kaufman & Campana, 2019; Lieberman, 2018). Studies support the need to understand how awareness is shared and communicated to district leaders and key stakeholders in order for key players to understand the relative advantage of the innovation of OER and move from persuasion to decision on the Innovation-Decision Process (Rogers, 2003).

In 2017, Allen and Seaman surveyed K-12 school districts found that 35% of districts were not at all aware of OER. Additional responses revealed that only 28% were aware or very aware of OER and CC (Allen & Seaman, 2017). While over half of the school districts surveyed had some knowledge of OER, when it came to understanding OER and its open licensing through CC, that number dropped to less than a third (Allen & Seaman, 2017). In a mixed method study of K-12 teachers, 50% of the participants indicated their main struggle with implementing OER was locating suitable resources (Tang et al., 2020).

In addition to the insufficient knowledge of OER in K-12 education, OER awareness is still lacking in higher education (Allen & Seaman, 2014; Belikov & Bodily, 2016; Brown et al, 2020; Martin, Belikov, Hilton, Wiley, & Fischer, 2017; Van Allen & Katz, 2020). A 2016 survey of faculty at Brigham Young University found that 69% of the faculty respondents were not aware of OER alternatives for their traditional textbooks and materials (Martin et al., 2017). Nearly 70% of the BYU faculty were unaware of OER alternatives despite Utah being a leading state in the OER movement. In 2012, Utah committed to supporting and advancing open resources in its schools and universities (Johnson et al., 2014). If this lack of awareness exists in a state recognized for its OER leadership, then communication and awareness are critical components for true widespread use and adoption of OER.

In a 2014 nationwide study by Allen and Seaman, 2,144 faculty members representing 2-year, 4-year, private, and public institutions were surveyed regarding OER. Of those surveyed, 73% reported they believed that OER was at least as good or better than traditional resources (Allen & Seaman, 2014). As a follow-up to the 2014

study, a 2016 qualitative study analyzed 218 of the open-ended responses and found that 73.9% of the faculty respondents still had questions regarding where to find OER, how to evaluate OER, how to license OER, how to adopt OER, and more (Belikov & Bodily, 2016). In New York, during a 2019 master's-level teacher education course, 100% of the enrolled students reported it was their first time hearing about and using OER (Van Allen & Katz, 2020). Furthermore, according to the most recent Horizon Report, 56% of college faculty and almost 73% percent of students had still not heard of OER (Brown et al., 2020). Lack of OER awareness and information in K-12 and higher education contribute to the rate of movement on the adoption process (Allen & Seaman, 2014; Belikov & Bodily, 2016) and are weighed against noted incentives as districts consider adoption.

Adoption of OER—benefits and drawbacks. Once the decision to adopt has been made, the implementation stage reveals the benefits and the drawbacks of the innovation (Rogers, 2003). Studies show that OER have demonstrated effectiveness in learning outcomes (Robinson et al., 2014; Hilton et al., 2019) and providing equitable resources (Colvard, Watson, & Park, 2018; Wiley & Gurrell, 2009). However, when drawbacks resulting from lack of access and lack of training make the complexity and trialability too difficult, the rate and degree of adoption can be affected (Rogers, 2003).

Based on published research from 2015 to 2018 regarding the effectiveness of OER use, Hilton (2020) found that over 95% of the studies indicated utilization of OER leads to learning outcomes that are as good or better than those using traditional textbooks. Furthermore, research found that students in Utah utilizing open textbooks scored .65 higher on the Criterion Referenced Test (CRT) than students utilizing

traditional textbooks (Robinson et al., 2014). A study completed by Hilton et al. (2019) looked at 3 years of test results for elementary students utilizing open educational math resources and commercial math resources. After an examination of end-of-year testing for over 12,000 math students, no statistically significant difference in scores was found between the students who utilized Eureka Math (open educational resource) and the students who utilized traditional, commercial textbooks (Hilton et al., 2019).

In Louisiana, the Department of Education led the charge to develop curricula utilizing open educational resources (Kaufman & Campana, 2019). Following this focused effort, the 2015 fourth-grade state reading scores showed larger improvements than any state in the nation. While not mandated, over 80% of the school districts in Louisiana have chosen to adopt the state-developed OER materials (Kaufman & Campana, 2019). While these studies vary greatly in size and scope, ranging from one school district all the way up to an entire state, they provide the evidence potential users may be seeking.

In addition to the demonstrated positive learning outcomes, open educational resources can provide both the needed access to resources and the high quality necessary to facilitate student success (Wiley & Gurrell, 2009). Technology plays a key role in equalizing opportunities for all students, and equity can be looked at as providing what is fair and just (Veletsianos, 2020). However, it is difficult to discuss equity without also looking at quality (Jurado de Los Santos, Moreno-Guerrero, Marín-Marín, & Soler Costa, 2020). Providing fair and reasonable access alone is not enough if the access is not to quality resources and materials (Bali et al., 2020).

A large-scale study involving over 20,000 students from the University of Georgia from 2010 to 2016 found that end-of-course grades improved for all groups utilizing open textbooks (Colvard et al., 2018). Upon further disaggregation of the data, the research showed that Ds, Fs, and withdrawal rates for underserved and Pell eligible students who utilized open educational resources were substantially decreased (Colvard et al., 2018). This finding demonstrates how open educational resources can help level the playing field and provide equitable access for all students. Providing equity in education requires providing equal opportunities and equal access (Bali et al., 2020; Jurado de Los Santos et al., 2020).

Equity regarding access to educational resources is not a new topic (Lynch, 2020); disparities in curriculum, books, technology, and materials have been discussed in policies and studies for decades. However, due to the sudden and widespread disruption to schools and learning caused by COVID-19 in March of 2020, equity and access were at the forefront of educational conversations (Lynch, 2020; Ossiannilsson et al., 2020). Also dominant in those conversations were open educational resources. Schools districts and states that had already utilized or initiated adoption of OER were more prepared to transition teachers and students to distance and virtual learning (Ossiannilsson et al., 2020). Other school districts and other states that were playing catch-up regarding the benefits of open educational resources began looking at OER to address the educational disruptions that continued on into the 2020-2021 school year.

Across the globe, the COVID-19 pandemic forced school districts to utilize emergency remote learning. The use of OER through online learning grew substantially. The countries, states, and districts that already had a strong OER framework and

management system were able to transition more effectively and efficiently (Ossiannilsson et al., 2020). Recognizing the disruption to education caused by the pandemic and the need to systematically address the inadequacies and inconsistencies in OER adoption and implementation, UNESCO called on countries to implement the recommendations from UNESCO's COVID-19 Global Education Coalition and the Dynamic OER Coalition. As stated in the UNESCO call to action:

The COVID-19 crisis has resulted in a paradigm shift on how learners of all ages, worldwide, can access learning. It is therefore more than ever essential that the global community comes together now to foster universal access to information and knowledge through OER. (Chakchouk & Giannini, 2020, para. 3) While the COVID-19 pandemic provided demonstrated benefits of adoption, without addressing the complexity attribute and making OER universally usable, diffusion can be impacted (Rogers, 2003).

If complexity makes implementing too burdensome, potential users may not proceed (Rogers, 2003). Martin and Kimmons (2020) pointed out the lack of research regarding OER accessibility and explained that improving user experience must be a paramount effort. Also hindering the rate and degree of OER adoption can be the lack of time to individually seek out and evaluate open educational resources (de los Arcos et al., 2016; Ozdemir & Bonk, 2017).

Just as OER use is not limited to the United States, neither are the barriers. A study funded by the Hewlett Foundation surveyed 657 teachers from around the world and found that over 50% reported their biggest challenges to implementing OER were having time to find resources, knowing where to find the resources, and actually finding

the resources (de los Arcos et al., 2016). In addition, a study of Turkish teachers found that the time needed to search, select, and edit open educational resources was the greatest hindrance to widespread use (Ozdemir & Bonk, 2017).

District leaders, educators, and stakeholders often lack understanding of OER definitions, licensing requirements, OER creation, and institutional support (Huang et al., 2020; Martin & Kimmons, 2020; Otto, 2019). Training and professional development are needed to address these obstacles to OER implementation (Kim, 2018). Educators require appropriate training and skills when implementing instructional changes (Darling-Hammond, Hyler, & Gardner, 2017). Tang (2020) reported that professional development is needed in order for K-12 teachers to be able to effectively and efficiently access open educational resources. According to Forgette (2020), teachers in Mississippi would benefit from professional development regarding open educational resources and training regarding licensing and available repositories. While research shows that training and professional development are needed (Forgette, 2020; Huang et al., 2020; Martin & Kimmons, 2020; Tang, 2020), it will require a focused effort based on policies and institutional practices in order for the benefits to outweigh the drawbacks and allow OER implementation and confirmation to occur. If not addressed effectively, the diffusion of a new innovation will not take place if it is too complex and cannot be easily implemented (Rogers, 2003).

Postadoption of OER—advantages and challenges. Following adoption of a new innovation, even adopters can change their minds and return back to the Perceived Attribute of relative advantage, deciding that the innovation is not better than what was previously used (Martin & Kimmons, 2020). Even if an adopter makes it to the final

stage of the Innovation-Decision Process, confirmation, negative feedback can cause the adoption decision to be reversed (Rogers, 2003). Sustainability is a concern if open educational resources are to remain relevant and dynamic (Ganapathi, 2019).

Huyen (2006) described two main approaches to sustaining OER, and they are institutional backing through funding sources like grants and endowments and a community model that relies on the enthusiasm and participation of users to continue growing OER. In order for the community model to work, barriers impeding access to and awareness of open educational resources must be addressed (Huyen, 2006). To address sustainability concerns, Bliss and Patrick (2015) contended that changes are needed in state policies.

Recommendations at the state level should include funding an OER committee responsible for locating and evaluating open educational resources that meet the state curriculum standards and providing focused professional development regarding OER use and access to preservice and practicing teachers and to teacher educators (Bliss & Patrick, 2015). In Louisiana, state law stipulates that “the purchase of electronic textbooks, instructional materials, and other media or content shall be maximized to the extent practical” (Louisiana Revised Statute, 2015, para. 20). In addition to policy changes, OER diffusion and sustainability will depend upon all stakeholders working together (Yano & Meyers, 2018).

In addition, Allen and Seaman (2014) found over 50% of university faculty identified the lack of a comprehensive cataloging system as the biggest barrier hindering adoption of open educational resources. In order to strengthen access and availability, libraries can serve as key components to develop and host repositories while librarians

and library media specialists can serve as leaders of OER curation and dissemination (Leng, Ali, & Hoo, 2016; Malbon, 2019). Recognizing and utilizing key players will be essential to widespread OER adoption (Leng et al., 2016).

OER Impact on Taxpayer-Funded Research and Development

As Rogers' (2003) diffusion of innovations theory points out, diffusion is a process guided by human interaction. Success stories are shared, and potential users are attracted to the Perceived Attributes of the Innovation (Rogers, 2003). However, at times, other agencies and governing bodies can step in and insist on the change. As the following examples show, that is currently happening with some aspects of OER; although, it is unknown if that will be sustained. If so, some diffusion could occur by forcing some additional adopters.

When materials and resources are restricted by passwords and copyrights, work and research completed by multiple organizations are often redundant (Myers, 2020; Wiley & Green, 2012). Because much of the work regarding curriculum development is done through public, taxpayer funding, allowing or requiring open sharing can be an efficient, cost-effective way to develop and build upon resources and discoveries that have already been paid for at least one time (Hylen, 2006; Scholarly Publishing and Academic Resources Coalition, 2015). Yet a lot of confusion still remains regarding creation and use of open licenses (Myers, 2020).

Without the ability or the requirement to openly share with others what has been discovered, produced, and created, work must be repeated and funded time and time again (Wiley & Green, 2012). Government agencies, departments, and foundations frequently provide grants and funding for research and educational development. One of

the most popular and widely utilized open educational resources is Eureka Math. Work on the math curriculum began in 2012 by Engage NY and was funded by federal Race to the Top money (Bonnot, Keener, & Wiley, 2016). In 2013, the Obama administration began work on open sharing and developing policies that would require the release of federally funded studies to the public within a year of publication (Rivard, 2013). In January of 2017, the U. S. Department of Education announced that entities awarded competitive grant funding would be required to publish their works using open licensing (South, 2017). The free access available through open licensing helps eliminate extra money and time being spent on duplicating work throughout school districts, states, and organizations. Depending on the potential user, this could serve as motivation to pursue adoption; it could also discourage some potential users from looking further into something that could be viewed as a mandate and halt or reverse progress on the Innovation-Decision Process (Rogers, 2003).

#GoOpen

As referenced throughout the review of literature, perceived or actual barriers to relative advantage, compatibility, and complexity can hinder or halt a potential user from progressing through the Innovation-Decision Process (Rogers, 2003). Recognizing the roll of all stakeholders is important to diffusion and particularly to the understanding and usability associated with open educational resources. A 2014 survey by the Council of Chief State School Officers (CCSSO) found that 13 states were already collecting OER materials and/or had an OER repository. Of the 38 states that responded to the survey, 36 states--including Missouri--responded “yes” to being interested in learning more about OER and what other states were developing (CCSSO, 2014). In 2015, a follow-up

survey from CCSSO indicated that 20 states were sharing OER within their states, and 37 states were interested in what other states were developing (Bonnot et al., 2016).

Providing an extra push to spur the advancement of the OER movement, the federal government began developing grants, policies, and initiatives like the #GoOpen campaign (Baker, Carney, & Schwark, 2019; Mulholland & Roscorla, 2016).

In an effort to stimulate and support K-12 adoption of OER, the U. S. Department of Education Office of Educational Technology launched the #GoOpen initiative in 2015. Led by Marcinek, the open education adviser, #GoOpen provides a system to support districts, schools, and educators as they transition from traditional textbooks to freely accessible, openly licensed educational resources (Gong, 2018; Marcinek, 2018; Mulholland & Roscorla, 2016). Choosing to sign on as a #GoOpen district is a beneficial move for K-12 school districts that want to initiate OER use and adoption (Baker et al., 2019). Districts involved in #GoOpen are either Ambassador Districts or Launch Districts. #GoOpen Launch Districts agree to identify a district team, develop a transition strategy, replace at least one traditional textbook with OER, and document and share their process. In addition to these commitments, #GoOpen Ambassador Districts also agree to mentor Launch Districts and to share OER they create (Office of Educational Technology, n.d.). Although #GoOpen launched in 2015, a 2017 nationwide survey revealed that 60% of district decision makers were “not aware” of the #GoOpen campaign (Allen & Seaman, 2017).

To further support the awareness and adoption of OER, in February of 2016 the #GoOpen campaign expanded to include #GoOpen states (Bonnot et al., 2016). Tools available online to states include planning documents, policy examples, professional

learning guides, tracking templates, and networking opportunities. As part of the commitment, each state agrees to:

- adopt/implement a statewide technology strategy that includes the use of openly licensed resources as a central component.
- develop and maintain a statewide repository solution for openly licensed resources.
- participate in a community of practice with other #GoOpen states and districts to share learning resources and professional development resources.
- create a webpage to share the commitment to #GoOpen and document the state's progress. (U. S. Department of Education, n.d.)

Only 20 states have chosen to sign on with the #GoOpen initiative (Tepe & Mooney, 2018). In Missouri, at the time of this study, 10 districts had signed on as Launch Districts, and three districts were serving as Ambassador Districts even though Missouri was not active in the #GoOpen States' campaign (Office of Educational Technology, n.d.). Without support from the state education department and access to a state repository, schools in Missouri and other nonparticipating states are forced to develop their own repositories or find a place to store all of their OER (Tepe & Mooney, 2018).

To help raise awareness of #GoOpen and encourage greater participation, in 2018 the U. S. Department of Education partnered with Institute for the Study of Knowledge Management in Education (ISKME) to involve other organizations to help spread the word (GoOpen Network, n.d.). The OER Commons, one of the largest platforms for open educational materials, is overseen by ISKME. In addition, the states that committed to #GoOpen and agreed to develop and maintain an OER repository are

curating resources that will make searching and selecting much simpler for educators (Tate, 2018). The advocacy and supports being created can help address some of the barriers that are slowing the rate of diffusion of OER and provide the needed resources to move to implementation and confirmation on the Innovation-Decision Process (Rogers, 2003).

Summary

While some diffusion of open educational resources has taken place, OER adoption is not widespread. Despite predictions of widespread adoption (Johnson et al., 2014) and positive outcomes from its use (Hilton et al., 2019; Kaufman & Campana, 2019), obstacles delay consistent implementation of OER (Brown et al., 2020; de los Arcos et al., 2016). This study was designed to respond to the gap in research regarding what factors influence the decision to pursue or to decline formal adoption of OER resources in K-12 school districts. The purpose of this phenomenological study was to understand the personal experiences of district leaders and what influenced the decision to formally adopt OER in Missouri's #GoOpen districts. The researcher utilized Rogers' (2003) diffusion of innovations theory to guide the literature review and explain how the topics covered can impact the rate and degree of diffusion of OER.

It was important to examine OER history, impact, and strategies of support while also reporting the challenges facing OER. Research demonstrates that OER can provide significant savings to school districts and taxpayers, provide students with engaging and up-to-date materials, and provide teachers with access to a vast offering of resources that are fully adaptable and customizable (Hilton et al., 2019; Jurado de Los Santos et al., 2020; Kaufman & Campana, 2019; Lieberman, 2018). However, additional studies

indicate that lack of awareness, lack of access, lack of training and professional development, and lack of sustainability impede the diffusion of OER due to the perceived advantages not being enough to persuade some users to pursue adoption (Allen & Seaman, 2017; Ganapathi, 2019; Martin & Kimmons, 2020; Senack, 2015; Tang, 2020). Through the study, the researcher hopes to add to the body of research with data that reveal the influences needed to initiate and sustain OER adoption.

In Missouri, 13 districts have committed to #GoOpen and adopting OER. Understanding how each district gained awareness and initiated the process can fill a gap in the research that can lead to greater utilization and adoption of OER. Due to the particular experiences being examined in this study and the phenomena specific to the participants, this descriptive, qualitative study was selected (Cilesiz, 2011 Otto, 2019; Perkins, 2011).

In Chapter Three, the researcher will discuss the methods used in this study, the design of the study, and the participants included in the study. Additionally, Chapter Three will include the research procedures utilized and how the data were analyzed. In Chapter Four, the researcher will present the findings of the study, and the researcher will conclude Chapter Five with the interpretation of the findings and recommendations for next steps and future research.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

Although organized efforts at the national level have been made, widespread use of open educational resources in K-12 schools has yet to occur (Allen & Seaman, 2017). The purpose of this study was to respond to the gap in research by examining what factors are influencing the decision to pursue formal adoption of OER in K-12 school districts and how adoption occurs. A phenomenological study was selected in order to learn about the lived experiences of decision makers in each district, and understand if, and to what degree, adoption took place. The researcher examined the data to identify shared patterns and emerging themes. The patterns and themes were utilized to understand what influences successful OER adoption in Missouri's #GoOpen districts.

As described throughout the literature review, Rogers' (2003) diffusion of innovations theory helped guide this study. The diffusion theory can be utilized to help explain why some innovations flourish and others do not. In school districts, the rate and degree of diffusion of educational innovations can be impacted by organizational rules and procedures (Rogers, 2003). A participant from each of Missouri's 13 #GoOpen districts shared experiences regarding what circumstances influenced their awareness of OER, which key players influenced decisions, and which actions encouraged further movement in the process or led to a change in direction for the district.

Purpose of the Study

The purpose of this phenomenological study was to understand the personal experiences of district leaders and what influenced the decision to implement OER in Missouri's #GoOpen districts. Data for this study were collected through interviews and

document analysis in order to understand why districts found OER viable, how districts approached the adoption process, and the perceptions of the participants regarding the effectiveness of OER adoption.

Because Missouri is not a #GoOpen State, it was an individual, independent decision for a district to become involved in #GoOpen (Tepe & Mooney, 2018). Each of the Missouri school districts that participated in this study intentionally decided to become involved with #GoOpen either as a Launch District or as an Ambassador District (Office of Educational Technology, n.d.). Although all districts in Missouri had the same opportunity to join the formal, organized open movement supported by #GoOpen, they were the only 13 that chose to participate (Tepe & Mooney, 2018). Understanding the why and how of their shared experiences can add to the body of research regarding OER adoption by detailing the phenomena that occurred in their districts and the experiences that influenced and impacted them before, during, and after the process.

Research Questions

This phenomenological study explored the lived experiences of district leaders in Missouri #GoOpen districts. In order for researchers to avoid impacting what is meaningful and significant to each participant, a qualitative study is typically guided by a central question (Creswell, 2014; Moustakas, 1994). This study was guided by the following central question: What influenced the decision to formally adopt open educational resources in Missouri's #GoOpen districts? The following subquestions helped frame the study and guide the interviews:

1. What circumstances influenced the awareness of OER?
2. What key players influenced the decision to explore OER?

3. What actions influenced the adoption of OER?
4. What obstacles influenced the rate and degree of adoption?
5. What outcomes were observed following OER adoption?

Research Approach

Upon identifying the research problem to be explored in this study, the researcher was conscientious in selecting the research approach needed to answer the research questions. A qualitative study was selected in an attempt to understand the OER process and describe what influenced the rate and degree of adoption. Of the qualitative approaches available, phenomenology was selected as the research strategy with which to investigate the common lived experiences of the multiple participants.

Phenomenology had its beginnings in philosophy dating back to the works of Aristotle (Kontos, 2018). While phenomenology is recognized as being present to some extent in all qualitative studies as they seek to describe a phenomenon, phenomenological research focuses on the direct, lived experiences of individuals in relation to a shared phenomenon (Creswell & Poth, 2018; Merriam, 2002). Numerous variations of phenomenology exist with many expanding on the views of Edmund Husserl (Creswell & Poth, 2018). Because of the interpretive, descriptive nature of phenomenology, phenomenological research often lacks routine, systematic steps to follow for the process (Converse, 2012; Groenewald, 2004). However, the work of other researchers was utilized to detail and describe the steps taken in this study (Creswell, 2014; Groenewald, 2004; Hycner, 1999; Moustakas, 1994). The remainder of Chapter Three will explain the research design utilized for this phenomenological study.

Participants

The participants in this qualitative phenomenological study were selected based on purposeful sampling (Creswell & Poth, 2018). Because this study was conducted to examine the specific phenomenon of OER adoption, participants were selected from Missouri school districts that had made the commitment to sign on as #GoOpen Districts. Thirteen participants took part in the study. The administrator who was interviewed in each district was identified as the leader of the adoption process and as the person most knowledgeable regarding what took place and the circumstances around those occurrences. Participants included assistant superintendents, superintendents, curriculum directors, and other leadership positions. Geographical limitations were not placed on participants; instead, participation was open to all Missouri districts that had made the commitment to be a #GoOpen District.

Research Setting

The sites for this study included 13 school districts throughout the state of Missouri. The districts were found in different parts of the state and varied greatly in student enrollment and demographics. Because phenomenological research seeks to understand phenomena as a lived experience (Cilesiz, 2011; Yüksel & Yildirim, 2015), every effort was made to conduct personal interviews on-site at each district. However, when restricted by limitations caused by the COVID-19 pandemic or participant request, the researcher conducted interviews with Zoom conferencing. Student enrollment and demographic breakdowns for each district are shown in the Table 1 (Missouri Department of Elementary & Secondary Education, 2019). This is the most current information provided by the Missouri Department of Elementary and Secondary

Education (DESE) and depicts a wide variety of districts that were choosing to investigate OER.

Table 1

Demographic Breakdown of School Districts

District	Student Enrollment	Per Pupil Expenditure	Free/Red. Student Percentages	Graduation Rate	Years of Experience Prof. Staff
A	4,349	\$9,290	23.8%	96.57%	11.3
B	1,436	\$11,688	100%	96.88%	14.6
C	2,375	\$9,922	37.7%	86.7%	12.0
D	3,534	\$9,419	15%	96.55%	16.0
E	18,075	\$10,882	19.9%	96.75%	15.9
F	17,613	\$12,442	19.6%	95.65%	14.3
G	5,889	\$14,044	46.2%	88.33%	14.2
H	6,242	\$9,993	100%	73.95%	13.4
I	764	\$9,174	46.5%	95.08%	11.8
J	2,097	\$9,672	48.9%	93.79%	11.2
K	1,379	\$10,409	66%	99.17%	11.5
L	12,504	\$10,259	19%	95.31%	14.1
M	20,096	\$11,207	47.3%	96.8%	12.5

Research Design

This qualitative phenomenological study was designed to understand the experiences of administrators in Missouri #GoOpen Districts during their involvement with the #GoOpen campaign and adoption of OER. Phenomenological research focuses on the descriptions of shared experiences from the individual perspective (Creswell & Poth, 2018; Lester, 1999; Polkinghorne, 1989; Yüksel & Yildirim, 2015). In order to examine the phenomena specific to the participants, this descriptive type of study was selected. By studying the lived experiences of the participants, phenomenology allows for deeper meaning and the opportunity to recognize the influence personal experience and individual perspective have on the decision to enact change (Creswell & Poth, 2018).

Purposeful sampling was utilized in order to determine participants. This method was selected to guarantee that chosen participants were directly involved with the research problem (Creswell & Poth, 2018). One-on-one interviews were conducted with each participant, one district leader from each of the 13 school districts. Interviews were conducted during in-person meetings when possible and with Zoom video conferencing when needed. Although #GoOpen member districts are available in numerous publications, specific quotations and documents were not attributed to any person or district in order to protect the confidentiality of participants and allow their responses to be anonymous.

Following the interviews, the researcher utilized member checking in order for participants to be able to verify the accuracy of their responses. In addition, the researcher utilized member checking following the preliminary analysis in order for participants to check the researcher's findings for completeness (Creswell & Poth, 2018). Member checking served as a part of the triangulation process, which utilized multiple sources to validate the data (Creswell & Poth, 2018). This was accomplished with member checking, multiple reviews of the interview session recordings and transcripts, and review of district documents to verify what was shared during the interviews.

Instrumentation

In a phenomenological study, the researcher serves as the primary instrument (Pezalla, Pettigrew, & Miller-Day, 2012). The lead interview question is the central question for the study: What influenced the decision to formally adopt open educational resources in Missouri's #GoOpen districts? Based upon the direction the participant takes the discussion, the subquestions may or may not be asked (Creswell, 2014; Pezalla

et al., 2012). The subquestions for this study were also part of the instrumentation and were formulated following Rogers' (2003) Perceived Attributes and Innovation-Decision Process and helped to guide each interview. Because phenomenological research focuses on the lived experiences of the participants, structured interviews relying on a strictly followed set of questions are not utilized (Martin & Kimmons, 2020; Moustakas, 1994). The interviews provided rich, narrative data that the researcher analyzed for patterns and themes (Korstjens & Moser, 2017).

In addition to the interviews, participants provided documentation which supported the OER process in their districts. Documentation varied slightly from district to district depending on the level of OER adoption at the district, but it included planning materials, timelines, professional development plans, and budgets. The researcher also included demographic information for each school district, which was collected through the DESE website and the district websites.

Research Procedures

Following the proposal, approval to conduct this phenomenological study utilizing semi-structured interviews was granted by the Research Review Board at Southwest Baptist University. After being approved, the researcher began a detailed audit trail, which was a transparent description of the steps taken from the start of the research, through the data collection, and to the reporting of findings (Nowell, Norris, White, & Moules, 2017). The records from an audit trail not only help build trustworthiness and credibility, but they add to the transferability of the findings, which can be difficult with a phenomenological study that relies heavily on open-ended questions and data interpretation by the researcher (Nowell et al., 2017).

Following approval, the first step before collecting data was contacting the central office of each participating district to gain written permission for the study to take place (See Appendix A). Contacts were made through e-mail and phone calls. Next, the interviewees were contacted and completed an informed consent form before participating in the study (see Appendix B). Interview times and formats were arranged through phone calls and e-mails. Although complete anonymity could not be guaranteed due to the districts' publicized membership as a #GoOpen district, confidentiality was important to the researcher and no participant names or school districts were identified in the data or discussed in any of the findings. School district participants were identified as D1, D2, and so on. Data collected during the interviews were secured on a password-protected device.

As recommended for qualitative studies, conversational questions were used to begin the interview, which included time in education, time in position, and involvement in initial #GoOpen sign-on (see Appendix C). Also as recommended, a central question was utilized to guide the interviews (Creswell, 2014; Moustakas, 1994; see Appendix D). Five subquestions were utilized to help frame the study but were not asked in all of the interviews (see Appendix D). During the interviews, the researcher utilized open-ended questions and allowed the participants to guide the interview in order for it to more accurately represent the lived phenomena and not be influenced by structuring the interview with a list of specific questions to complete (Creswell, 2014). The interviews lasted a maximum of 1 hour each and were recorded and transcribed using Otter and Otter Live Notes. Following the interviews, the researcher requested supporting documents from each of the participants including timelines, planning materials,

professional development plans, and budgets. During transcription, the interviews were transcribed verbatim, eliminating the possibility of researcher bias (Seidman, 2006). The researcher provided copies of the interview to each participant for member checking to verify accuracy and ensure clarity of interviewee's intentions.

Data Analysis

Edmund Husserl (1859-1938), the founder of phenomenology, stressed the importance of *epoche* as essential to phenomenological research (Butler, 2016). *Epoche* is the suspension of one's personal assumptions and beliefs when studying a phenomenon (Butler, 2016). In preparation for the interviews and for analyzing the data, bracketing was utilized by the researcher in order to try to eliminate any subjectivity or preconceptions (Moustakas, 1994; Sohn, Thomas, Greenberg, & Pollio, 2017). Bracketing is a self-reflective practice that aims to eliminate any preconceived ideas or emotional influences (Hycner, 1999; Merriam, 2002; Moustakas, 1994). The researcher had no ties to any of the school districts or participants, but to help ensure no influence from preconceived ideas related to the topic being studied, the researcher utilized a self-reflective journal prior to the start of interviews and following each interview.

The researcher created an audit trail, which serves as a transparent description of the steps taken from the start of a research project to the reporting of the findings (Nowell et al., 2017; see Appendix E). The first step in analyzing the transcripts was listing all relevant statements. Statements that were repetitive, off topic, or overlapping were ignored. The researcher read each interview multiple times looking for patterns, assigning codes, and labeling themes (Hycner, 1999; Merriam, 2002; Moustakas, 1994; Sohn et al., 2017). This data cleaning is referred to as horizontalizing and leaves the

researcher with horizons that can be clustered into themes during the reduction of experiences (Moustakas, 1994; Yüksel & Yildirim, 2015). After listening to each interview and reading each transcript multiple times, a narrative was written for each interview (Groenewald, 2004; Hycner, 1999; Moustakas, 1994). Narratives were returned to participants to check for clarity and accuracy of intent. A composite summary was written to describe the essence of the common experience of the phenomenon being studied (Groenewald, 2004; Hycner, 1999; Moustakas, 1994).

When analyzing the data, participants in the study remained anonymous, and the interviewees and coordinating districts were not identified in the report. After patterns and themes were identified, the researcher looked at the data, themes, and narratives through the lens of Rogers' (2003) diffusion of innovations theory to better understand if or when disruptions in the Innovation-Decision Process and Perceived Attributes affected the degree or rate of adoption of open educational resources. A chart was created to show the process listed above as well as the form utilized to review the components of Rogers' theory (see Appendix F). Triangulation of the data to verify accuracy and validity was completed through member checking, multiple reviews of interview recordings and transcripts, and review of district provided documents (Creswell & Poth, 2018).

Summary

This chapter focused on the methodology and research design for the phenomenological study of OER adoption in Missouri's #GoOpen districts. By utilizing this approach, the researcher was able to study the phenomenon from the lived experiences of the participants. Examining the data to find relevant statements and create

themes is a time-consuming process and subjective in nature; therefore, utilizing an audit trail to detail the steps of data analysis was essential for trustworthiness and validity (Nowell et al., 2017). Finally, viewing the findings through the lens of the diffusion theory was beneficial in order to more fully understand the impact on rate and degree of OER adoption.

Triangulation of data, self-reflection to prevent researcher bias, and member checking to ensure validity and transferability of the study were also presented. In Chapter Four, the researcher will present the data analysis and findings of the study. In Chapter Five, the researcher will conclude the study and will provide an in-depth interpretation of the findings as well as professional implications and recommendations for future research.

CHAPTER FOUR

FINDINGS

Through the use of digital technologies, information, images, social interactions, and more can be quickly transmitted around the world in a matter of seconds (Calara, 2020). Advances in technology continue to impact the field of education. In the late 20th century and early 21st century, the open educational resources (OER) movement emerged as a transformative technology that has the potential to revolutionize how educational materials are developed, utilized, and most importantly, shared (Bliss & Smith, 2017). This phenomenological study examined the OER adoption process through the lived experiences of district leaders in Missouri #GoOpen school districts.

The purpose of this phenomenological study was to understand the personal experiences of district leaders and what influenced the decision to formally adopt OER in Missouri's #GoOpen districts. The researcher analyzed shared experiences from the participants to identify why districts determined OER were a viable option, how adoption processes were initiated and conducted, and the outcomes regarding OER adoption. The data were further analyzed utilizing components of Rogers' (2003) diffusion of innovations theory in order to understand why, how, and to what extent OER had diffused. It was the researcher's intent, through this qualitative study, to add to the body of research regarding how OER adoption takes place in K-12 school districts.

While studies demonstrate the usefulness and positive outcomes of adopting OER (Hilton et al., 2019; Kaufman & Campana, 2019; Kimmons, 2015; Robinson et al., 2014), research to understand what leads to an OER commitment and how to initiate the adoption process is lacking. It is acknowledged that planning takes months, if not years,

and a team approach is needed (Office of Educational Technology, n.d; Walthausen, 2016). What is not fully defined or described in current research is what leads a school district to initiate the use of OER and how the implementation of OER takes place.

The study was designed to examine the imbalance which exists between usefulness and availability of OER versus the rate and degree of OER adoption (Havemann, 2016; Martin & Kimmons, 2020). Of specific interest to the researcher was how the OER adoption process took place in each district and what common themes affected the rate and degree of adoption. By utilizing a semi-structured interview with open-ended questions, participants were able to freely describe their experiences with the phenomenon (Creswell, 2014). Following conversational questions, each interview began with the central question for the study: What influenced your district to formally adopt open educational resources? As needed, the following sub-questions were asked to help frame the study:

1. What circumstances influenced the awareness of OER?
2. What key players influenced the decision to explore OER?
3. What actions influenced the adoption of OER?
4. What obstacles influenced the rate and degree of adoption?
5. What outcomes were observed following OER adoption?

Chapter Four presents the key findings from the in-depth interviews and documents collected from administrators at #GoOpen districts in Missouri. Included in the chapter are descriptions of the procedures followed for collecting and analyzing data, descriptions of the participants involved in the study, and narratives of the interviews. Each research question was addressed with supporting evidence from the

data and further analyzed utilizing components of Rogers' diffusion of innovations theory.

Data Collection Procedures

Upon entering the data-collection phase of this study, it was not the aim of the researcher to determine correct or incorrect steps or to identify best practices or mistakes made. It was the goal of the researcher to describe how the OER adoption process occurred in each district, to identify any common themes which emerged, and to look at the lived experiences through the lens of Rogers' diffusion of innovations theory. Purposeful sampling was utilized to select participants due to shared experience with the phenomenon (Creswell & Poth, 2018). The semi-structured interview provided the opportunity for participants to share their perspectives of the lived experiences of OER adoption (Martin & Kimmons, 2020; Moustakas, 1994). Each interview was conducted in a one-on-one setting and recorded utilizing Zoom video conferencing. The Otter.ai application was utilized to audio record and transcribe each interview.

Before proceeding further with the findings, it is important to note that not all of the districts chose to participate in the study. Of the thirteen Missouri school districts signed on with #GoOpen, district leaders from ten of the school districts agreed to participate. Three districts did not return communication from the researcher, including no response to emails or phone messages. Furthermore, the researcher found that not all of the districts chose to proceed with OER adoption. While each of the ten districts chose to sign on with #GoOpen and each began initial exploration, some did not advance any further in the process. This will be discussed more in the following sections.

Document Collection

Initially, the researcher intended to collect and analyze documents from each district which included timelines, professional development materials, and budgets. However, this yielded inconsistent results as the researcher found the majority of districts had not engaged in formalized planning. Furthermore, half of the districts had halted or never initiated an OER adoption process following initial exploration. The researcher was able to validate, through the documents collected, that districts with an active OER initiative had formalized procedures for OER resource adoption and/or OER professional development. While participants described during interviews how money could be saved or how funds could be reallocated, none of the districts provided any budget documents. The triangulation of data sources gained from document collection, multiple reviews of interview session recordings and transcripts, and member checking of transcripts and narratives helped verify the data and provide validity for the study (Creswell & Poth, 2018). Table 2 below includes the documents collected from each district.

Table 2

Document Collection

	Professional Development	Planning Documents	Budget Documents
Participant 1	Yes	Yes	No
Participant 2	No	No	No
Participant 3	Yes	No	No
Participant 4	Yes	Yes	No
Participant 5	No	No	No
Participant 6	Yes	Yes	No
Participant 7	Yes	Yes	No
Participant 8	Yes	Yes	No
Participant 9	No	No	No
Participant 10	Yes	No	No

Data Analysis Procedures

Because the goal of phenomenology is to understand the meaning of a specified experience, literature providing well-defined guidelines to follow for conducting phenomenological research is lacking (Converse, 2011; Groenewald, 2004). Each phenomenological study is unique to an identified phenomenon. For this study, the data was interpreted utilizing an approach based on the work of Hycner (1999), adapted by Groenewald (2004), and refined by the researcher to meet the needs of the phenomenon being studied. The six steps utilized were: 1) bracketing utilizing a self-reflective journal, 2) data cleaning for units of meaning through horizontalizing, 3) clustering units into themes and comparing to documents collected and researcher’s notes, 4) summarizing each interview and utilizing member checking for clarity and accuracy, 5) examining the data and narratives through the lens of Rogers’ diffusion of innovations theory, and 6) creating a composite summary. As stated above, phenomenological

research has evolved over time based on the phenomenon being studied and the approach of the researcher. Further details of the data analysis procedures are discussed in this section.

Prior to beginning and throughout the interview process, the researcher reported thoughts, ideas, and connections in a self-reflective journal. In order to help ensure accuracy and transparency, the researcher utilized bracketing, which included the reflective journaling, in order to set aside any preconceived ideas or previous knowledge and focus on the lived experiences of the participants (Creswell, 2014; Groenewald, 2004; Hycner, 1999; Moustakas, 1994). Following the interviews, the researcher utilized member checking in order for participants to confirm the accuracy of their responses recorded in the transcripts (Creswell & Poth, 2018). Horizontalization was completed to identify meaningful statements in each transcript, and the researcher carefully reviewed transcriptions and interviews to code words and phrases (Hycner, 1999; Merriam, 2002; Moustakas, 1994). Multiple readings of each transcript followed, and the researcher highlighted and coded responses looking for similarities. Coded responses were organized into groups as patterns emerged (Hycner, 1999; Merriam, 2002; Moustakas, 1994; Sohn et al., 2017).

After listening to each interview and reading each transcript multiple times, a narrative was written for each interview (Groenewald, 2004; Hycner, 1999; Moustakas, 1994). Each of the ten participants engaged in member checking of the narrative in order to verify accuracy of the experience. Member checking served as a part of the triangulation process which utilized multiple sources to validate the data (Creswell & Poth, 2018). One participant requested a change and clarification to what the researcher

reported in the narrative and later approved the narrative following correction. A composite summary was written to describe the essence of the common experience of the phenomenon being studied (Groenewald, 2004; Hycner, 1999; Moustakas, 1994). Patterns and verbatim responses from participants were utilized to answer the research questions.

Participants

Due to the ongoing COVID-19 pandemic, it was not practical, and in some situations not possible, to conduct interviews in person. Data was collected through individual interviews utilizing Zoom and Otter.ai transcribing software. Purposeful sampling was utilized to select participants due to shared experience with the phenomenon (Creswell & Poth, 2018). Districts selected had indicated their interest in OER by choosing to sign on with #GoOpen. Participants learned about OER and #GoOpen in various ways from independent reading and research to shared information from a conference or colleague to receiving an invitation to attend the national #GoOpen Exchange.

The interviewee for each district was identified as being the person most involved with, and knowledgeable about, OER in the district. Of the ten district leaders interviewed, six were male and four were female. Additionally, nine of the ten participants were directly involved with the initial sign-on of #GoOpen. Participants had a range of 15-30 years' experience in education with an average of 22.5 years spent working in education. Participants served their districts in an administrative role which included superintendent, assistant superintendent, curriculum director or coordinator, or other administrative role. The participant demographics are depicted in Table 3.

Table 3

Demographic Breakdown of Participants

Participants	Years in Education	Superintendent or Assnt. Supt.	Director of Curriculum	Other Position	Involved in Sign-on
1	18	X			Yes
2	27	X			Yes
3	30			X	Yes
4	18		X		No
5	25		X		Yes
6	25	X			Yes
7	25			X	Yes
8	21		X		Yes
9	21			X	Yes
10	15	X			Yes

Descriptive Information

Following initial phone calls or emails to contact the OER leader in each district, individual participant interviews were scheduled via email. As stated in the informed consent, interviews did not last more than an hour. Table 4 shown below provides information regarding the length of each interview, the total number of pages transcribed for each interview, and the current state of the OER initiative in each district.

Table 4

Participant Interviews

Participant	Length of Interview	Transcript Pages	OER Initiative
1	53:24	13	Active
2	40:35	13	Never Started
3	43:40	12	Re-engaging
4	15:23	7	Halted
5	28:32	9	Halted
6	43:56	15	Active
7	42:31	10	Active
8	29:29	10	Active
9	29:51	6	Never Started
10	38:33	12	Active

Participant Narratives

Individual interviews allowed the researcher the opportunity to investigate the phenomena of the OER adoption process through the lived experience of each district leader. In order to protect confidentiality, participant narratives were not identified by District A, B, C, and so on, but rather by the order in which interviews were conducted. Following multiple readings of each interview transcript and listening to each interview recording multiple times, notes were taken and coding completed by the researcher in order to write the following descriptions of their stories. Of the ten participant districts, five districts currently have an active OER adoption process, one district is re-engaging in the OER adoption process, two districts have had OER adoption but halted or reversed the decision to continue, and two districts never proceeded with the process following initial exploration. Following each narrative, the researcher included an examination of the district's adoption process as viewed through the lens of Rogers' diffusion of innovations theory.

The stage of the adoption process in each district was identified using the Innovation-Decision Process steps of knowledge, persuasion, decision, implementation, and confirmation. The Innovation-Decision Process is an important component of Rogers' (2003) theory and is defined as "an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation" (p. 172). The steps of the process are knowledge, persuasion, decision, implementation, and confirmation. Typically, each of the steps follows in order. During the knowledge stage, the potential adopter learns about the innovation and tries to understand why it works and how it works (Rogers, 2003).

Rogers explained that during the persuasion stage, the user develops a positive or negative opinion about the innovation. In the decision stage, the user decides to adopt or reject the new idea (Rogers, 2003). Following the decision stage, implementation results in the innovation being put to use (Rogers, 2003). Rogers explained that problems during the implementation stage can be much more problematic to organizations than to individuals because many more users are involved in carrying out the implementation, and some may be resistant to the change. This can be utilized in examining the OER decision process at the organizational level of school districts. While an individual might be excited to implement OER, effective district-wide adoption requires buy-in from all stakeholders. The final stage is confirmation. Confirmation is a time when the user seeks support and reinforcement for the adoption; however, it is also a time when negative feedback can lead to the adoption decision being reversed (Rogers, 2003).

Additionally, the perceived attributes are relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). Rogers explained that the perceived attributes can be utilized to understand the adoption rate of a given innovation. Each attribute contributes to the relative speed a new innovation does or does not spread. Relative advantage considers whether the innovation is perceived by users as being better than what they had (Rogers, 2003). Compatibility looks at how closely an innovation matches the users' values, experiences, and needs (Rogers, 2003). The perceived ease or difficulty of use of an innovation is defined by its complexity, and the rate of adoption is explained by the complexity-simplicity continuum developed by Rogers. According to Rogers, trialability is "the degree to which an innovation may be experimented with on a

limited basis” (p. 258). And finally, observability impacts the rate of adoption based upon how much others can discern the results of the adopted innovation (Rogers, 2003).

Participant 1. Participant 1 had previously learned about, explored, and implemented OER in another district. Upon moving to the new district, Participant 1 found a staff “hungry” for more technology. Because of prior OER knowledge and experiences, Participant 1 was able to move forward with an OER initiative with little resistance. The OER initiative allowed for a reallocation of funds which enabled additional Chromebook purchases. In order to lead a successful OER adoption process, Participant 1 was strategic in organizing a positive “tech savvy” team to assist in disseminating information. Additionally, Participant 1 scheduled multiple paid training opportunities which were optional. During the summer after the first year of exploration, over 75% of teachers attended the optional professional development. Additional professional development opportunities were provided as well as time for exploring and collaborating. Participant 1 explained that OER is now an accepted and expected practice in the district, and OER utilization has aided teachers in gaining a better understanding of learning goals and standards.

Diffusion of Innovations. Participant 1 District moved through the Innovation-Decision Process to the confirmation step where OER continues to be an active initiative in the district. Each of the Perceived Attributes were favorable in Participant 1 District. Compatibility was high as OER was viewed as a complement to the technology needs of the district. Specific attention was given to trialability as one teacher first utilized OER with positive results. Participant 1 explained the importance of “starting with the people who are most comfortable” and those who “would be the most likely to

share.” Following the initial success, the observability by other faculty members aided in the spread of OER use and adoption. In Participant 1 District, the use of OER has “become the way we do things.”

Participant 2. In 2016, the district received an invitation to the #GoOpen Exchange which was held at Skywalker Ranch in California. Participant 2 directed a representative of the district to attend the nationwide meeting. When the representative reported back to Participant 2, the information shared was not compelling enough to generate further exploration. While the leader admitted OER could address equity issues and allow for reallocation of funds, those potential benefits were not enough to outweigh the concerns regarding recent large-scale district curriculum purchases, teachers already overworked by required district initiatives, and how and when vetting of the resources would take place. While Participant 2 reported no official OER adoption has occurred in the district, the leader recognized that some OER is used which is allowed by district officials. In retrospect, Participant 2 acknowledged that attendance by more than one district representative could have changed the degree to which OER has been explored and utilized in the district.

Diffusion of Innovations. Participant 2 District did not move past the persuasion step on the Innovation-Decision Process. With limited information about why and how OER works, the district was not persuaded to move forward. In retrospect, Participant 2 stated the district “needed to have a curriculum person” in attendance at the #GoOpen meeting which could have changed OER use and adoption in the district. Based on what was known about OER, the Perceived Attributes of relative advantage, compatibility, and complexity kept the process from moving forward.

Participant 3. Participant 3 was in the right place at the right time when a district leader was expressing frustration about the high cost of proprietary science materials. Because Participant 3 had previous experience teaching with open education science resources, a plan was developed. That initial plan led to presentations at the national level through the #GoOpen campaign. During the presentations, representatives from the district were able to share the impact of OER adoption including increased teacher trust and ownership, greater understanding of standards, and the benefit of shifting funds to teacher development and purchasing hands-on materials for students. However, due to district leadership changes and plans for OER sustainability and stewardship not in place, further district OER progress and adoption halted. Participant 3 stated, “If it’s not mechanisms and systems that are leading the way, it’s people leading the way. And people move.” Currently, the district has been reengaging in OER conversations. Participant 3 is optimistic about the direction of OER going forward and the positive impact OER will have including helping meet the district’s needs related to diversity, equity, and inclusion.

Diffusion of Innovations. Participant 3 District initially progressed quickly through the Innovation-Decision Process. However, because implementation at an organizational level can be challenging with various departments and individuals involved, sustainability at the confirmation level was not achieved. Turnover in leadership positions presented challenges in the Perceived Attributes of relative advantage and compatibility. Participant 3 explained, “You have to move from having people as champions of the work and putting in place systems and structures that carry

the work forward.” The district is reengaging with a focus on sustainability which will be key to the confirmation step.

Participant 4. In Participant 4’s district, the exploration of OER largely began and ended with one individual. Once that key person who was advocating for OER left the district, the momentum was halted. While OER is successfully being used in middle school math, administrative turnover has reduced enthusiasm to look at further wide-scale adoption. In addition, the district leader reported teacher perception regarding OER use and adoption as an obstacle. Participant 4 has found whenever OER is mentioned, teachers think that the district is being “cheap” and wanting teachers to just “do more work.” Participant 4 recognizes the usefulness and benefits of OER and stated, “OER is a great idea and great concept.” However, the district leader further explained, “It takes a lot of time to get to know it and be comfortable exploring it more.” OER is still an option which can be considered during a district resource adoption, but it is not a requirement or an active district initiative.

Diffusion of Innovations. Participant 4 District moved quickly through the steps of the Innovation-Decision Process and was experiencing success with OER use. However, turnover in several leadership positions, coupled with lack of information and possible misunderstandings about the time and planning needed for successful implementation, has the district back at the knowledge step. Because of the time needed to explore and understand OER, Participant 4 explained that it is important to have “teachers who are forward thinking.” Concerns regarding the Perceived Attributes of relative advantage, compatibility, and complexity have halted an active OER initiative in the district.

Participant 5. Former district administration assigned Participant 5 to attend the convening at Skywalker Ranch in 2016 with the district’s instructional technology coordinator. Following this initial exploration, the district moved forward in the OER adoption process based on the district leadership’s desire to access what is available for free on the Internet. However, change in leadership and a closer look at the time, effort, and money needed to effectively implement OER led to a different approach in the district. While Eureka Math and Open Up Resources have been successfully adopted and utilized, Participant 5 anticipates upcoming adoption cycles will focus on traditional, proprietary resource materials. If prepackaged, comprehensive OER options are readily available to access and utilize, they would likely be considered; however, expending valuable time to train teachers and to locate and vet resources is not a district priority. Consistency across district buildings has been an identified benefit of OER adoption, but ultimately the district’s OER experience has shown “the juice just isn’t worth the squeeze.”

Diffusion of Innovations. Participant 5 District was another district which moved quickly through the Innovation-Decision Process and adopted OER with some success. Due to leadership changes and concerns with the Perceived Attribute of the complexity involved in utilizing OER, the district is not actively pursuing an OER initiative. While OER is being used in some areas, in the next couple of years Participant 5 anticipates teachers to request “maybe we could go out and buy a resource this time versus try to do it with OER.” The district has returned to the persuasion stage of the Innovation-Decision Process in deciding next steps of OER adoption.

Participant 6. OER was already being explored and discussed by Participant 6 prior to the launch of #GoOpen. In fact, representatives from the district presented at the #GoOpen Exchange held in California. After enduring multiple adoption cycles where traditional resources were researched, vetted, and purchased – yet still disliked by the teachers who selected them – Participant 6 identified OER as an opportunity for a better way. Participant 6 has developed a systematic process in which funds not spent on proprietary resources are reallocated to support professional learning for the course or content area teachers. As a result of the OER adoption process, teachers utilizing OER are constantly evaluating the tools and resources used to support instruction which then leads to better instruction. In addition, it has built agency and ownership as teachers of the district have created and shared instructional resources. Participant 6 explained that OER is not required by the district, but it is considered during each resource adoption. Participant 6 is confident that OER adoptions will continue to grow in the district as OER fits perfectly with initiatives under consideration by the visionary leader of the district.

Diffusion of Innovations. Participant 6 District moved systematically through the steps of the Innovation-Decision Process. OER utilization is a confirmed and ongoing part of the district. Participant 6 described the deliberate move to shift “money from purchasing a product to creating a product.” The reallocated money was spent on professional learning, and “every year the teachers got that portion to spend on themselves.” In Participant 6 District, each of the Perceived Attributes contributed to the steady rate of OER adoption. Observability aided in confirmation throughout the district,

and observability has also been beneficial to other districts considering OER as Participant 6 results are willingly and actively shared.

Participant 7. Participant 7 was the first person in the district to begin actively exploring OER. Following attendance at the convening held at Skywalker Ranch, the initiative was jump started. Equity of access was already a conversation in the district, and OER was utilized to help provide access to digital content. Participant 7 emphasized that understanding and internalizing OER is a long process and “not a switch that you flip.” Through conversations and time to learn and study, OER has become part of the district’s culture. A digital content strategy has been developed, and OER consideration is required as part of every adoption cycle. Currently, OER has been adopted for math, science, and world languages and is used as a supplemental resource in other content areas. As a result of OER, the district is now more intentional about resource selection and adoption and not dependent on “the big three” publishers. Participant 7 also reported that a deeper understanding of standards and content has been a positive outcome of the OER adoption process.

Diffusion of Innovations. Participant 7 District has committed to district use of OER and moved to the confirmation stage on the Innovation-Decision Process. The adoption process was systematic to ensure sustainability. Participant 7 explained, “OER has to be part of the adoption process, and we have to evaluate OER as part of our overall analysis of what we want.” Each of the Perceived Attributes resulted in positive contributions to the rate and degree of OER adoption in the district. Participant 7 stated, “It’s just part of what we do.”

Participant 8. Participant 8’s district was looking to fill a huge void where no curriculum had been adopted. The leader had learned of OER and was encouraged by a neighboring district leader who was passionate about OER. After investigating further, Participant 8 intentionally selected a “high functioning” group of teachers to explore OER. Through scheduled PD and working with OER users in other districts, two content areas adopted OER. Getting those courses and teachers “on the same page” was a positive outcome of OER adoption. However, further adoption of OER has been hindered due to concerns of legality and lack of understanding of copyright laws. Part of that concern was created when a resource company representative expressed annoyance with districts who use OER and continue to also use their proprietary materials. In addition to the legal concerns, the lack of needed time for teachers to research, collaborate, and train has led Participant 8’s district to be very selective when examining OER. While OER is still an option during resource adoption, moving forward with any OER adoption will be done with caution and careful consideration of the content and teacher teams involved.

Diffusion of Innovations. Participant 8 District initially proceeded through the Innovation-Decision Process to confirmation. Although some success utilizing OER was observed, concerns regarding the Perceived Attribute of complexity and the difficulties that can come with OER use have returned the district to the decision step. Participant 8 explained that implementing OER correctly takes time and would require “giving [teachers] the PD and the time and the support that they would need to do it.” OER can still be considered; however, it is done with great caution.

Participant 9. Upon learning about the #GoOpen initiative, Participant 9 believed it would fit well with the district’s focus on digital materials. Having recently moved to 1:1 at the high school, the district was looking at options available to avoid digital subscriptions from textbook publishers. Participant 9 attended the #GoOpen meeting in California along with district curriculum directors and the director of library media services. While Participant 9 was encouraged by the national kick-off and thought the OER movement seemed promising, it never took off in the district. Participant 9 explained that it seemed the risk of the unknown and the time involved to investigate OER further kept district curriculum leaders and district administration from moving forward. Due to turnover and retirement, Participant 9 is the only member of the exploratory group still with the district. To date, no official OER adoptions have taken place, and OER is not being considered in the curriculum department. Without an OER “cheerleader” in the district who is able to influence momentum, and without focused support beyond the district level, Participant 9 believes the district will continue with the normal adoption process and purchasing resources from traditional publishers.

Diffusion of Innovations. Participant 9 District remains at the knowledge stage of the Innovation-Decision Process. Various levels of OER understanding exist in the district. When materials are selected, Participant 9 explained that it is called a “materials’ adoption process,” but “it is really also sort of adopting curriculum in some ways because you are just sort of adopting a package that comes from the vendor.” To date, district leadership has not been convinced that OER is needed, and OER use is not viewed as a relative advantage. Until the Perceived Attributes, beginning with relative advantage, are viewed favorably, proprietary resources will continue to be utilized by the district.

Participant 10. Participant 10 happened upon OER and #GoOpen when attending an ISTE conference. After learning about OER and talking with some of the #GoOpen leaders, it was determined that OER could be a great opportunity for Participant 10's district. Following further exploration and training, OER resources began to be considered during resource adoption cycles. In order to not overwhelm teachers, Participant 10 utilized instructional coaches to research, explore, and vet OER options. In doing so, teachers are presented with a manageable set of options when making adoption decisions instead of spending time searching and filtering through the multitude of available resources. One early adoption, Eureka Math, has since been unadopted due to the lack of professional development, training, and support. Participant 10 noted this situation has since been improved upon and professional development is now available, but it was too late for Participant 10's district. The frustration led to a traditional, proprietary purchase in math. Currently, OER is not a requirement during adoption, but it is considered and has been a great asset to the areas of fine arts, practical arts, and science.

Diffusion of Innovations. Participant 10 District moved through the Innovation-Decision Process to the confirmation step with OER adoption. OER has been a benefit to several courses and subject areas in the district. Participant 10 explained that fine arts and practical arts were two areas where teachers were “really excited about finding some resources that were applicable, that were aligned, that they could search through.” While remaining in the confirmation stage, OER is an ongoing initiative in the district. However, the Perceived Attribute of complexity has impacted the rate at which OER has been adopted.

Composite Summary

Early on in the interview process, it became clear that each experience was going to be uniquely different. Beginning with initial participant contacts to discuss informed consent and interview times, some participants were reluctant to participate believing they did not have anything to contribute due to the lack of an active OER initiative in their districts. After completing the first five interviews, the researcher had heard experiences of never starting the process of OER adoption, halting the process, reengaging in the process, and having an active adoption process.

Despite the differences in rate and degree of adoption, each participant found OER to be a useful tool which could benefit school districts. Hindering more widespread adoption, however, were various obstacles which led to difficulty and frustration. Even in districts with active OER initiatives, time was a concern. Teachers only have a limited amount of time, and implementing OER effectively takes time. Another significant obstacle was a lack of understanding of OER – what it is, where to find it, and how to use it. While individuals, groups, and organizations are available to provide support and training, time again becomes an issue.

Based on the data collected, three of the participants were in districts where OER has become part of the culture. OER will be considered each time resources are adopted. Even without organized leadership outside of the district, they have developed a process which is sustainable. The sustained utilization of OER in each district has been impacted by a strong OER advocate, forward thinking leadership which focuses on curriculum before resource adoption, and systematic procedures for exploring and adopting OER.

Research Questions

This study was guided by a central research question designed to explore the lived experiences of participants as they engaged in the OER adoption process. Additionally, five open-ended sub-questions were utilized to help gain understanding of the phenomenon. The questions were developed based on Rogers' diffusion of innovations theory as the researcher sought to understand what influenced the OER adoption process. Each research question has been addressed with supporting evidence from the data collected during interviews. In addition, the additional topic of state leadership has been included.

Central research question. What influenced your district to formally adopt open educational resources? Within this question, five sub-questions were utilized to determine what influenced the rate and degree of OER adoption. The five sub-questions were: What circumstances influenced the awareness of OER? What key players influenced the decision to explore OER? What actions influenced the adoption of OER? What obstacles influenced the rate and degree of adoption? What outcomes were observed following OER adoption?

Awareness of OER. Various experiences led to the awareness of OER in each district. Seven of the participants became aware of OER as a result of personal learning, research, and conversations. For two participants, unsolicited invitations led to attendance at the 2016 #GoOpen Exchange in San Francisco and provided their awareness of OER. And for one participant, district involvement with #GoOpen began because a former employee initiated the sign-on.

Of the seven who became aware of OER through their own discovery and investigation, five of the districts currently have an active OER initiative, one is reengaging, and one never started. For the two who became aware of OER through the #GoOpen Exchange, one district has halted the OER initiative and one never started. And finally, in the district where the participant inherited an OER initiative, it has since been halted. The results indicate that a thorough understanding of the innovation impacts progress through the adoption process as described by the knowledge step of the Innovation-Decision Process.

Key players of OER. Little consistency was found when examining the key players involved in OER exploration. The top four responses were curriculum director/coordinator/team (6), teachers (6), superintendent (5), and assistant superintendent (4). In several districts, the assistant superintendent also shared responsibility for directing or coordinating curriculum, so it can be assumed that the person in charge of curriculum was identified as a key player in 8 of the 10 districts. Other positions varied due to size of the school district; however, some positions common to all school districts were identified infrequently including principal (2), school board (2), and library services director (1).

Participants in districts with active OER initiatives found importance in strategically selecting teachers who work well together and would be “willing to take it and run with it” (P1). Superintendents had varying levels of involvement with the OER adoption process, but districts with active OER initiatives described the importance of a forward-thinking superintendent with one participant explaining “whoever the superintendent is has to set the stage for innovation” (P7). Continuing on with the

adoption process depends on the positive or negative opinion of the innovation and whether positive persuasion will occur. Intentionally selected key players moved half of the districts past the persuasion stage.

Actions to adopt OER. While differing actions took place in each district, some consistencies were revealed. Communication was identified as an important action in each of the 5 districts with an active OER initiative and in the district which is currently reengaging in the process. Participants stressed the importance of ongoing conversations. One participant reported “at least a year of conversation” (P7) took place which helped build relationships and develop trust.

In further examining the common actions which influenced the adoption of OER, focused professional development was named as an important action by 5 participants. Additionally, 3 participants reported that connecting with an OER advocate in another district helped influence the decision in their districts. Three participants with active OER initiatives also reported the reallocation of resources as an important action which influenced the adoption process. In contrast, 2 participants reported the action of saving money, and one described a district leader believing “most resources could be found on the Internet for free” (P5). Both of those districts previously had an OER initiative but are now halted. Actions, and beliefs upon which actions are based, have a demonstrated effect on the decision to adopt as shown by the districts which proceeded on the Innovation-Decision Process.

Obstacles of OER. In analyzing the obstacles which impacted the rate and degree of adoption, 3 were reported most frequently. Those obstacles were lack of time,

complexity, and unwillingness to change. Although reported as separate obstacles, the three often overlap.

Lack of time was reported by 8 of the 10 participants, including 4 of the 5 active districts. Participants explained that time was needed to explore and find OER, to vet OER options, and to provide appropriate professional development for teachers to implement OER. One participant explained that for OER adoption to be successful, it would require giving teachers “the PD and the time and the support that they would need to do it” (P8).

In addition to the obstacle of time, participants explained that the complexity of OER can be overwhelming. Half of the participants reported this as an obstacle to adoption. Understanding copyright and licensing was included as one component of that complexity. One participant described how “copyright law is so difficult to navigate” (P5). In order to do so correctly requires appropriate professional development; however, “districts have an infinite amount of PD needs and a very finite amount of time” (P5). Of the 5 districts that reported complexity as an obstacle, 2 never started the adoption process and 2 started OER adoption but have now halted the process.

The third most commonly reported obstacle impacting rate and degree of adoption was mindset and a lack of will to change. This was reported by 4 participants. One participant explained, OER adoption “takes time and it takes effort and it takes will to do things differently than you have done in the past” (P9). For that district, an OER initiative was never started. In contrast, another district dealt with mindset and “people who were concerned,” (P7) but those concerns were addressed by having intentional

conversations spread out over time which allowed people time to consider and study OER. That district continues to have an active OER initiative.

Although obstacles were addressed and overcome in six of the ten districts, obstacles impacted adoption. Two participants shared the quotation, “OER is free like a puppy” (P3, P5). Although the participants were unsure where the quotation originated, it had been shared and discussed at OER meetings and conferences. Both agreed that it was true with one explaining, “it’s free, but you spend a whole lot of money on the other stuff that comes with it. So we spent a lot of time and effort and energy and money really working with our teachers to make it fit” (P5). Obstacles and how they are confronted have a significant impact during the implementation stage. Rogers explained that problems during the implementation stage can be much more problematic to organizations than to individuals because more users are involved in carrying out the implementation, and some may be resistant to the change.

Outcomes of OER. Noted outcomes were reported from participants in districts where an active OER initiative was present or where one had existed but was now halted. Because OER choice and implementation is unique to each district, the majority of outcomes were unique and varied. However, 4 of the 8 participants discussed the positive impact OER adoption had on teachers’ knowledge of the standards. Additionally, 4 of the 8 participants discussed the positive impact OER adoption had on equity in their districts.

While reported outcomes varied, 3 of the participants from active districts plus the participant from the district that is reengaging described the impact on instruction and the understanding of learning standards. The districts did not adopt OER until substantial

time was spent evaluating and writing curriculum. One participant explained, “We write our curriculum first and then adopt resources” (P7). Another participant shared that an outcome of OER adoption was “getting away from the overreliance on textbooks as the curriculum and instead looking at the learning goals as the curriculum” (P1). And finally, an additional participant reported that with OER “teachers were constantly evaluating the tools to see how effective they were to support the instruction” (P6).

The next consistent outcome shared by 4 of the 8 participants whose districts adopted OER was the ability to address equity concerns. Consistency across grades and across buildings can be achieved without additional financial obligations with OER. As one participant explained, without the consistency “you’re lighting the flames of inequity because you’ve got different buildings doing different things” (P5). Another participant’s district was already looking at access and avenues to “provide kids access to materials that were going to be high quality” (P7). Two of the eight participants also reported how OER can help address diversity, equity, and inclusion (DEI). As one participant explained, “As we move into equity and really looking at DEI, OER is a bigger and bigger part” (P6). The other participant stated, “If you’re using open educational resources which are remixable and editable and modifiable, it’s at that point where you can make the curriculum more reflective of the kids that you have in front of you” (P3).

Additional topic of state leadership. In 6 of the 10 interviews, the topic of state direction or state leadership was discussed. From the lack of awareness of OER to the burdens placed on districts and teachers to find and vet resources, participants expressed a need for centralized state leadership for OER. To ensure anonymity of responses, the quotations contained in this section will not be assigned a participant number.

Despite support at the national level, OER users in school districts can feel isolated in their work. As one participant stated, “I still talk to people now that don’t have any idea that it exists. And I think that’s too bad because there’s a lot of great resources out there that they could use that they just aren’t aware of.” This lack of awareness can lead to missed opportunities as explained by another participant; “if we had a statewide spearhead for this, we could help a whole lot of tiny districts save money and have a nice quality resource to support our state curriculum.”

In addition to eliminating missed opportunities due to lack of awareness, state leadership could provide needed guidance. As one participant stated, “If there was a state initiative, I think that would make a big difference in terms of being able to help districts go down that path because it’s really uncharted waters.” That sentiment was echoed by another participant who explained that if the state took a leadership role then “[OER] would be better received and at least people would feel like it had some sort of imprimatur from the state that said, ‘hey this is worthy.’” Ultimately, the rate and degree of widespread OER adoption can be impacted by the lack of centralized state leadership. As one participant explained, “Without a voice like that at the state level, it’s going to be one off districts that are working on this, and they may spread it out to a few more, but it’s not going to be a widespread OER adoption at the state level until we have a bigger voice.”

Summary

The purpose of this phenomenological study was to examine the OER adoption process in Missouri’s #GoOpen districts. This study was designed to investigate what influenced districts to adopt OER and how that process took place. While sign-on with

the #GoOpen initiative was a shared experience of each participant, rate and degree of adoption varied. As research indicates, OER awareness, understanding, and utilization is sporadic and inconsistent (Allen & Seaman, 2017; Martin & Kimmons, 2020; Tang et al., 2020) which was confirmed by the data collected for this study.

Chapter Four included the findings of the study and an analysis of the data. A description of the procedures used for data collection and analysis was presented. Chapter Four also included a description of participants and a summary narrative of each participant interview followed by a brief analysis utilizing Rogers' Innovation-Decision Process and Perceived Attributes. Also in the chapter was a composite summary to describe the shared experiences of participants with the identified phenomenon. The research questions were addressed utilizing direct quotations from the participants and descriptions from the researcher.

In Chapter Five, the researcher will conclude the study and will provide an in-depth discussion and interpretation of the findings. The themes which emerged from the findings will be addressed with connections to the literature review. Chapter Five will conclude with implications for professional practice and recommendations for further research.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this phenomenological study was to understand the personal experiences of district leaders and what influenced the decision to formally adopt open educational resources in Missouri's #GoOpen districts. The researcher analyzed shared experiences from the participants to identify why districts determined OER were a viable option, how adoption processes were initiated and conducted, and the outcomes regarding OER adoption. The data were further analyzed utilizing Rogers' (2003) diffusion of innovations theory in order to understand why, how, and to what extent OER had diffused. Participants included a district leader from 10 of Missouri's 13 #GoOpen districts who were directly involved in their district's process to formally adopt OER. It was the researcher's intent, through this qualitative study, to add to the limited body of research regarding how OER adoption takes place in K-12 school districts.

In order to understand phenomenon taking place, data were collected through in-depth interviews, participant documents, and researcher notes. From this data, the researcher examined how and why the rate and degree of OER adoption were impacted. Application of Rogers' (2003) Perceived Attributes of Innovation and the Innovation-Decision Process provided the researcher a lens with which to view and understand how the adoption process took place. The researcher utilized open-ended interview questions as a research strategy to help eliminate bias and not influence responses, thereby allowing each participant to describe the individual experience of the OER adoption process.

Chapter Five includes a summary of the findings in which the research questions are addressed. A discussion of the major themes that emerged from the data and their connections to current literature are provided in addition to a discussion of the limitations of the study and how the limitations were addressed by the researcher. Also included in this chapter are professional implications the findings may have, recommendations for future research, and a summary of the chapter.

Summary of Findings

Just as OER adoption in K-12 districts is lacking, so is the research regarding why and how school districts navigate the OER adoption process (Malbon, 2019; Otto, 2019). Previous research has not directly explored how and why school districts adopt OER. The researcher's intent was to add to the body of research and to help fill the gap specifically related to the phenomenon of OER adoption. Previously, in Chapter Two, literature and studies examining learning materials in schools, the history of OER, possible incentives and obstacles when considering OER, possible benefits and drawbacks of OER adoption, possible advantages and challenges resulting from OER adoption, and the #GoOpen movement were reviewed. The literature reviewed presented a foundation to help frame the study. When answering the research questions, the researcher provided confirmation with participant responses and documents collected. Additionally, by utilizing components of Rogers' (2003) diffusion of innovations theory, the researcher examined the rate and degree of OER adoption through the lived experiences of school district leaders.

Because of the lag in widespread adoption of OER (Otto, 2019), understanding the specific phenomenon occurring in each #GoOpen district was essential in order to

analyze themes and shared experiences. Although the rate and degree of OER adoption varied in each of the participating districts, each participant found OER to be a useful tool that could benefit school districts. Hindering more widespread adoption, however, were various obstacles, which often led to difficulty and frustration.

Research indicates inconsistent and sporadic awareness, understanding, and utilization of OER (Allen & Seaman, 2017; Martin & Kimmons, 2020; Tang et al., 2020), and that was confirmed by the data collected in this study. Of the 10 districts participating in the study, five districts currently had an active OER adoption process, one district was reengaging in the OER adoption process, two districts had had OER adoption but halted or reversed the decision to continue, and two districts had never proceeded with the process following initial exploration. As presented in the literature review, benefits of OER use have been identified (de los Arcos et al., 2016; Hilton et al., 2019; Kimmons, 2015; Morales & Baker, 2018; Robinson et al., 2014); however, obstacles have prevented widespread OER adoption (Allen & Seaman, 2017; de los Arcos et al., 2016; Senack, 2015; Tang et al., 2020).

In order to help understand how and why OER is diffused, the researcher utilized Rogers' (2003) diffusion of innovations theory and focused on the Perceived Attributes of Innovation and the Innovation-Decision Process. The Innovation-Decision Process will be discussed later in the chapter as the research questions are answered. The Perceived Attributes and their impact on district adoption of OER are presented in Table 5. The numbers listed in the table indicate the assigned number given to participating districts to protect identity. Participant responses from the interviews are included to further explain the attribute.

Table 5

Perceived Attributes of Innovation by Participants

Attribute	Positive Influence	Negative Influence
Relative Advantage	P1 – “reallocation of funds” P3 – “having a better product that fits us” P5 – “not being driven by textbook companies” P6 – “opportunity” P7 – “expand access” P8 – “put us all on the same page” P10 – “limited budget,” “limited resources”	P2 – “it didn’t catch on” P4 – “can be overwhelming” P9 – “unknown aspect,” “depart from the norm”
Compatibility	P1 – “looking for more technology” P3 – “diversity, equity, and inclusion” P6 – “really looking at instruction” P7 – “digital first district” P8 – “we didn’t have any district curriculum” P10 – “great opportunity”	P5 – “change in leadership” P2 -- “other district initiatives”
Complexity	P1 – “teachers who were willing” P6 – “good strategic plan” P7 – “at least a year of conversation” P8 – “very heavy on the PD side”	P3 – “big leadership change” P4 – “takes a lot of time” P5 – “copyright law is difficult to navigate” P6 – “time” P7 – “it’s a long process” P8 – “teachers don’t have enough time” P10 – “time”
Trialability	P1 – “finding that right person” P6 – “textbook purchase to professional learning” P7 – “already fostered relationships” P8 – “high functioning group of teachers” P10 – “know your teams and your people”	
Observability	P1 – “become the way we do things” P6 – “it would be hard to undo it at this point” P7 – “it’s been internalized”	

Research Questions

In order for the researcher to avoid altering what was meaningful and significant to each participant, this qualitative study was guided by a central question (Creswell, 2014; Moustakas, 1994). The following central research question was designed to explore the lived experiences of participants as they engaged in the OER adoption process: What influenced the decision to formally adopt open educational resources in Missouri's #GoOpen districts? The following subquestions helped frame the study and guide the interviews as needed:

1. What circumstances influenced the awareness of OER?
2. What key players influenced the decision to explore OER?
3. What actions influenced the adoption of OER?
4. What obstacles influenced the rate and degree of adoption?
5. What outcomes were observed following OER adoption?

In addition to the questions developed at the onset of the study, the lack of state leadership was discussed in the majority of the interviews. That topic has also been addressed in this section. Each subquestion was addressed with supporting evidence from the data and further analyzed utilizing Rogers' (2003) Innovation-Decision Process, which consists of the steps of knowledge, persuasion, decision, implementation, and confirmation.

Awareness of OER. Throughout the process of collecting data, the researcher realized participant awareness of OER was achieved in a variety of ways. The researcher found for the 10 participants, awareness of OER was a result of personal exploration, an unsolicited invitation to an introductory meeting, or OER implementation by a

predecessor. For those discovering OER through their own research and investigations, interviews indicated a greater understanding of the innovation.

Of the seven who discovered OER through personal learning and research, five of the districts had an active OER initiative, one was reengaging, and one had never started. One participant explained that while trying to search for digital resources, “I happened to stumble upon something that talked about OER” (P1). That led to further exploration and now an active district OER initiative.

As studies indicate, although OER have been around for over 20 years, lack of awareness continues to hinder more widespread adoption (Ganapathi, 2019; Senack, 2015; Tang, 2020). When viewed through the lens of Rogers’ (2003) Innovation-Decision Process, this indicates that a thorough understanding of the innovation provides the knowledge that can positively impact progress through the adoption process. Awareness of OER was the first step for districts as they considered adoption of OER.

Key players of OER. Much like the awareness of OER, little consistency was found in identified key players involved in the OER adoption process in the participant districts. However, the curriculum coordinator/team and teachers were identified most frequently, followed by the superintendent. In identifying teachers, intentional selections moved districts along on the adoption process.

Participants explained that it was important to select high-functioning teachers who worked well together. As one participant reported, “Finding that right person who was willing to take it and run with it” (P1) allowed for an effective trial period, which provided colleagues the opportunity to observe the positive results. When viewed

through Rogers' (2003) Perceived Attributes of Innovation, it is clear that positive experiences with trialability and observability can positively impact rate and degree of adoption.

In most districts, the superintendent did not play an active role in the OER adoption process. Yet in districts with active OER initiatives, participants explained that the process benefitted from a forward-thinking superintendent who supported progressive ideas. As one participant explained, "Whoever the superintendent is has to set the stage for innovation" (P7). While inconsistencies were evident throughout the districts, intentionally selected key players moved half of the districts past the persuasion stage. Recognizing and utilizing key players will be essential to widespread OER adoption (Leng et al., 2016).

Actions to adopt OER. In examining the actions taken by districts to implement OER as an effective tool, the results were also inconsistent. Studies indicate that OER are often being used sporadically, inconsistently, and unintentionally (Allen & Seaman, 2017; Martin & Kimmons, 2020; Tang et al., 2020). However, in the districts with ongoing and reengaging initiatives, the actions were intentional and focused, with district documents confirming planning and professional development taking place.

Intentional communication and ongoing conversations were described as instrumental in the OER adoption process for the districts with ongoing and reengaging initiatives. Focused professional development also influenced the adoption of OER. This was indicated during participant interviews and further evidenced through document collection. Of the five districts with ongoing OER initiatives, all five validated professional development through document collection.

When it came to actions related to financial implications, the ability to reallocate resources was an identified action in three active districts. In contrast, the two participants with halted initiatives reported the action was to save money rather than to reallocate resources. The inconsistent actions taken by participants demonstrate how OER adoption can be impacted. With careful planning and intentional actions, movement on the Innovation-Decision Process to the confirmation step can be achieved and sustained.

Obstacles of OER. Participants in this study highlighted obstacles that had been encountered during OER consideration and adoption. Research suggests that the rate and degree of OER adoption can be hindered by a lack of time to explore and evaluate (de los Arcos et al., 2016; Ozdemir & Bonk, 2017). In 8 of the 10 districts, participants confirmed that lack of time created a hindrance to adoption. In addition, participant responses indicated that turnover in leadership can impact the decision to implement, adopt, or discontinue OER use.

Participants reported that additional time was needed to explore and find OER, to vet OER options, and to provide appropriate professional development for teachers to implement OER. In addition to lack of time, complexity and unwillingness to change were the most reported obstacles impacting OER adoption. For some participants, while OER was recognized as favorable for the Perceived Attributes of relative advantage and compatibility with district initiatives, the obstacles involved with implementation proved too complex to overcome and continue with adoption (Rogers, 2003). Although obstacles were addressed and overcome in 6 of the 10 districts, obstacles impacted adoption. Two participants shared the quotation, “OER is free like a puppy” (P3, P5). The participants

agreed that it was true, with one explaining, “it’s free, but you spend a whole lot of money on the other stuff that comes with it” (P5).

Studies show that despite the incentives for OER use, obstacles not overcome can discourage users and prevent further investigation and experimentation with these digital resources (Martin & Kimmons, 2020). A significant obstacle encountered by participants was turnover. Whether it was an OER advocate leaving the district or changes in district leadership, turnover was shown to hinder and sometimes reverse adoption decisions. As one participant pointed out, progress was halted because of a “big leadership change” (P3). The participant further explained, that is why it is important to have “systems and structures that carry the work forward” (P3).

Obstacles can and do impact the rate and degree of OER adoption. This has been established by current research and confirmed by the lived experiences of the participants in the study. In order for progress on the Innovation-Decision Process to not be halted or reversed, potential OER users need to be aware of potential obstacles and plan for them in order to minimize or eliminate negative impact.

Outcomes of OER. Various outcomes were reported by participants following adoption of OER. As confirmed by the related literature (Colvard et al., 2018; Hilton et al., 2019; Robinson et al., 2014; Wiley & Gurrell, 2009), OER adoption impacted instruction and learning and also impacted the opportunity to provide students with equitable resources. For the districts where positive outcomes outweighed obstacles and frustrations, OER adoption has been supported and sustained and remains an ongoing initiative.

Of the eight districts that had or had had an OER adoption process, four of the participants discussed the positive impact OER adoption had on teachers' knowledge of the standards. In those districts, time was spent evaluating and writing curriculum prior to adopting any resources. Participants did not discuss learning outcomes in terms of student test scores; instead, participants explained that curriculum planning is more intentional, and teachers have "ownership of the direction of learning" (P6). Another participant explained that OER has encouraged "getting away from the reliance on textbooks as the curriculum and instead looking at the learning goals as the curriculum" (P1).

Additionally, 4 of the 8 participants discussed the positive impact OER adoption had on equity in their districts and the ability to provide students with current, high-quality resources. Studies show that OER have demonstrated effectiveness providing equitable resources for students (Colvard et al., 2018; Wiley & Gurrell, 2009). Participants also reported that OER can address the current needs regarding diversity, equity, and inclusion (DEI). As one participant explained, "As we move into equity and really looking at DEI, OER is a bigger and bigger part" (P6).

The districts with ongoing OER initiatives progressed through the Innovation-Decision Process to the confirmation stage (Rogers, 2003). Because of the positive outcomes identified by the districts, confirmation was sustained. and positive outcomes resulting from OER implementation allowed the districts to remain in the confirmation stage (Rogers, 2003).

Additional topic of state leadership. While not an identified subquestion prior to the beginning of interviews, the lack of state direction or state leadership was a part in

6 of the 10 interviews. Research indicates that funding at the state level should include an OER committee responsible for locating and evaluating OER and for providing focused professional development (Bliss & Patrick, 2015). Participants in this study expressed a need for state leadership to address the lack of awareness of OER and to help alleviate the burdens placed on districts and teachers to find and vet resources; however, several participants asked for the comments to remain completely anonymous.

While enthusiastic OER advocates may continue to advance OER initiatives in individual school districts, participants explained that local advocates do not contribute to widespread adoption. As one participant explained, “If we had a statewide spearhead for this, we could help a whole lot of tiny districts save money and have a nice quality resource to support our state curriculum.” The majority of participants explained that the rate and degree of widespread adoption throughout the state has been and will continue to be negatively impacted without state leadership. Centralized focused leadership at the state level could provide information and training to districts in an efficient, streamlined manner that would help address complexity concerns that often keep districts from proceeding with OER exploration and adoption.

Discussion of the Findings

Qualitative research is focused on producing rich, in-depth information to understand the phenomena being studied through synthesis and interpretation rather than quantified data in quantitative research (Korstjens & Moser, 2017; Queirós, Faria, & Almeida, 2017). The intent of this phenomenological study was to understand why and how OER was adopted and to identify themes that emerged from the research. Because a phenomenological study relies heavily on open-ended questions and data interpretation

by the researcher, transferability of the findings can be difficult (Nowell et al., 2017). To help build trustworthiness and credibility, the researcher utilized an audit trail to detail the steps taken from the start of the research, through the data collection, to the reporting of findings (Nowell et al., 2017). In order to help eliminate potential researcher bias and improve validity, the researcher utilized triangulation of the data through multiple reviews of the session recordings and transcripts, through member checking of transcripts and narratives by participants, and through document collection in each district to validate interview responses (Creswell & Poth, 2018). As part of the data collection, the researcher requested professional development documents for OER training, OER planning documents, and OER budget documents. The types of documents collected from each participant were shown in Table 2 of the previous chapter and will be discussed further in this section.

The results of this study suggest OER adoption rates and degree of adoptions vary significantly even within Missouri school districts that voluntarily signed on with the #GoOpen movement. Major themes that have emerged will be covered in this section. Themes will also be viewed through the lens of Rogers' (2003) diffusion of innovations theory to establish how rate and degree of adoption can be impacted. Also in this section is a discussion of the limitations of the study and how the limitations were addressed by the researcher.

Themes. Based upon the analysis of the data, patterns were identified and themes emerged. Following multiple reviews of interview session recordings and transcripts, horizontalization was completed to identify meaningful statements in each transcript. The researcher carefully reviewed transcripts and interviews to code words

and phrases and then highlighted and coded responses looking for similarities (Hycner, 1999; Merriam, 2002; Moustakas, 1994). Coded responses were organized into groups as patterns were identified and as themes emerged (Hycner, 1999; Merriam, 2002; Moustakas, 1994; Sohn et al., 2017). In addition, the researcher examined the themes through Rogers' Perceived Attributes of Innovation and the Innovation-Decision Process in order to further explain the impact on rate and degree of OER adoption. From the patterns identified, three major themes emerged:

1. A need for time and professional development;
2. A focus on reallocation of money rather than saving money; and
3. Lead OER adoption with systems and policies instead of relying on an OER advocate.

A need for time and professional development. Each of the participants involved in this study recognized OER can be useful tools for educators and school districts, which is consistent with research that found educators interested in and willing to utilize OER (Martin & Kimmons, 2020). However, as confirmed by this study, district leaders, educators, and stakeholders often lack understanding of OER definitions, licensing requirements, OER creation, and institutional support (Huang et al., 2020; Martin & Kimmons, 2020; Otto, 2019). The first theme that emerged from the data was the time and professional development needed to successfully understand and implement OER.

In order for more widespread OER adoption to occur, time for effective training and professional development is needed to address the obstacles associated with OER implementation (Kim, 2018). Without adequate time to provide worthwhile training and professional development, OER will not be perceived as a relative advantage to users,

will not be perceived as compatible to user needs, and will be viewed as too complex to warrant further consideration (Rogers, 2003). If this occurs, the potential user will stay in the knowledge or persuasion level of the Innovation-Decision Process or will advance to the decision level with limited understanding and decide not to proceed (Rogers, 2003).

While research shows that training and professional development are needed (Forgette, 2020; Huang et al., 2020; Martin & Kimmons, 2020; Tang, 2020), finding the time is often extremely difficult. Lack of time was reported by 8 of the 10 participants interviewed in the study, and lack of time can hinder the rate and degree of OER adoption (de los Arcos et al., 2016; Ozdemir & Bonk, 2017). One participant stated, “Teachers don’t have enough time as it is” (P8). In describing the effort to understand and utilize OER, another participant shared, “It takes a lot of time to get to know it and be comfortable exploring it more” (P4).

Although lack of time can be an obstacle that impacts the rate and degree of OER adoption, intentional, focused planning can aid the adoption process in moving forward (Darling-Hammond et al., 2017; Tang, 2020). As described in the interviews and supported by the district documents collected, each of the five districts with an ongoing OER initiative and the one district that was reengaging in the process had formalized procedures for OER professional development. As one participant explained, “We started out very heavy on the PD side” (P8). Documents collected from the districts included professional development agendas and copies of professional development presentations. In addition to explaining and defining OER and what it means to be open, the professional development time included opportunities to explore and investigate OER

options and time for curriculum work. To further enhance teacher understanding and awareness of OER, the participant further explained, “We looked at other districts, we attended summits, and we had breakout groups that would look at articles” (P8).

As demonstrated by districts with active initiatives, lack of time for needed training and professional development is an obstacle that can be overcome. However, participants at every step of the adoption process expressed frustration related to the time needed to understand, investigate, find, evaluate, and implement OER. These frustrations can cause school districts to discontinue further investigation of OER (Kaufman & Campana, 2019; Lieberman, 2018). The districts in Missouri that were involved in OER initiatives were doing so independently and in the absence of state leadership and guidance (Tepe & Mooney, 2018).

OER adoption can be done effectively; however, the process is time consuming and districts must include focused professional development for stakeholders to know and understand OER and create a sustainable practice. Lack of dedicated time and lack of professional development can lead to OER initiatives being halted or implementation practices being reversed and returned to proprietary purchases. The need for time and professional development is the first theme that evolved from the data in this study.

A focus on reallocation of money rather than saving money. A second theme that was revealed by the analysis of the data involved a different way of looking at the financial savings generated by OER adoption. Current research and studies indicate financial savings are noted benefits of OER implementation (Johnson et al., 2014; Wiley, Hilton, et al., 2012). While participants in this study with active OER and reengaging initiatives acknowledged OER was available for free, they did not discuss the amount of

money saved in their districts. Instead they focused on the reallocation of money and how to “spend that money in the right way” (P3).

Textbook publishers are part of a multi-billion-dollar industry (Price, 2019; Yano & Myers, 2018). If a free OER is utilized in place of a traditional, proprietary textbook, obviously money can be saved. Specific studies regarding the amount of money saved in K-12 school districts utilizing OER is lacking (Forgette, 2020); however, research at postsecondary institutions indicate that OER use can yield substantial savings (Clinton, 2018; Lieberman, 2018). Yet if the focus is on the free materials and money saved, then sustained implementation can be negatively impacted. As revealed by this study, the ability to provide free, up-to-date resources can lead to hasty decisions being made without fully understanding the process involved and without a plan for sustainability. As one participant explained, a previous administrator focused on “why would you pay for something if you can get it for free” (P5) without understanding the quality of resources and the investment it takes to explore and evaluate the resources. That district has since halted the OER initiative and is considering proprietary textbook purchases.

In contrast to “saving money,” 3 of the 5 participants with active OER initiatives reported the reallocation of resources as an important action that influenced the adoption process. Because commercial textbooks are costly to district budgets, resources can become out-of-date due to established 6- to 10-year adoption cycles (Allen & Seaman, 2017; Johnson et al., 2014; Wiley, Hilton, et al., 2012). In Participant 6’s district, the planned reallocation of money toward teacher learning and curriculum development allowed “teachers the opportunity to study and make their own choices and when they did

that, they learned their content better, and their instruction was reviewed, and they did it every year as opposed to every seven years” (P6). When designing this study, the researcher intended to collect budget documents that indicated the money saved by adopting OER; however, budget documents were not available from the districts because the majority of districts with active OER initiatives were not focused on utilizing OER to save money. Instead, the districts were refocusing the money on areas to continue supporting and improving instruction.

While a noted benefit of OER in current literature is saving money (Clinton, 2018; Johnson et al., 2014; U. S. Department of Education, 2017), how a district prioritizes the savings can impact adoption. Although money is saved by utilizing OER, strong OER initiatives do not focus on the savings. Instead, this study demonstrates that reallocating the money in a purposeful way to improve instruction is the real benefit. The review of OER research identified financial savings (Clinton, 2018; Johnson et al., 2014; U. S. Department of Education, 2017) and positive student outcomes (Hilton, 2020; Robinson, et al., 2014) as benefits of OER implementation. Yet, they are recognized as separate benefits. Based on the findings from this study, understanding how money saved with OER can be reallocated to improve student learning is a connected benefit that, when recognized, can positively impact rate and degree of adoption.

When viewed through the lens of Rogers’ (2003) diffusion of innovations theory, financial implications should be thoroughly studied and understood while in the knowledge level of the Innovation-Decision Process. A thorough understanding can lead to an OER adoption initiative that reaches the confirmation level and is sustainable. As

demonstrated in this study, districts that focused on the intentional reallocation of the money saved from OER use developed a sustained initiative and improved instruction.

Lead OER adoption with systems and policies instead of relying on an OER advocate. The final theme that emerged from the data was the importance of leading with systems and policies and not relying on an OER advocate. Current research confirms that systems and policies are needed at the state level in order to encourage and facilitate sustained OER use (Bliss & Patrick, 2015; Tate, 2018). The need for that level of OER support was also expressed by the majority of participants. However, what was not reported in current OER research but was established through the data collected in this study was the need for systems and policies at the local level. Creating an OER adoption process based on an enthusiastic OER advocate but absent of intentional systems and policies can negatively impact the rate and degree of adoption.

Because sustainability is a concern if OER are to remain relevant and dynamic (Ganapathi, 2019), state-level leadership is needed. To address awareness and sustainability concerns, Bliss and Patrick (2015) explained that changes are needed in state policies. States leading active OER initiatives vet and curate OER, which saves their school districts precious time and money (Tate, 2018). At the national level, the U.S. Department of Education's #GoOpen campaign and partners like the Institute for the Study of Knowledge Management in Education (ISKME) are providing support, resources, and networking opportunities (Baker et al., 2019; Gong, 2018; Marcinek, 2018). However, participants indicated more focused leadership and guidance are needed. State leadership of OER in Missouri could address some of the obstacles being

encountered, thereby increasing the rate and degree of adoption in individual school districts and across the state.

Throughout the interview process, the researcher noted varying degrees of OER knowledge and OER understanding existed among the participants as well as the administrators and educators from each district as described by the participants. This is consistent with current research, which found that educators at all levels are often uninformed about OER and misunderstand how OER can be used (Allen & Seaman, 2017; Martin & Kimmons, 2020). In the majority of participant districts, awareness of OER was discovered by an individual's personal learning, research, and conversations. As reported in the literature, often educators and district leaders do not know about or understand OER and open licensing (Wiley & Hilton, 2018). Even in a district with an active OER initiative, the participant explained, "I still talk to people now that don't have any idea that it exists" (P10).

Despite a lack of widespread awareness of OER (Ganapathi, 2019; Senack, 2015; Tang, 2020), because an individual in the participant districts recognized a need or an opportunity or a potential benefit for the school district, OER were examined and sometimes utilized, with sometimes being the key word. Lack of awareness and lack of understanding of OER can cause school districts to discontinue further investigation (Kaufman & Campana, 2019; Lieberman, 2018), which was confirmed throughout this study. Found in the participant districts, sometimes examinations and explorations grew into ongoing and sustained practices of OER adoption. Sometimes the process was halted following district leadership turnover or implementation frustrations superseding potential benefits. And sometimes, the process of OER adoption ended at the knowledge

stage (Rogers, 2003) with leadership not finding OER to be an innovation worth exploring.

While an excited OER advocate can inspire the process, effectively disseminating information throughout an organization can be challenging (Rogers, 2003). Because lack of awareness and understanding of OER is a hindrance to implementation (Allen & Seaman, 2017; de los Arcos et al., 2016), an initiative based on an individual advocate can be a cause of concern. As one participant stated, if “it’s not mechanisms and systems that are leading the way, it’s people leading the way, and people move” (P3). Participant 3 went on to explain, “You have to move from having people as champions of the work and putting in place systems and structures that carry the work forward.” The participant spoke from experience as the district was reengaging in the OER adoption process following turnover in key positions. Other districts explained that the systematic process that they utilize had created a way of doing things that was part of the culture and would not be undone with leadership or administrative turnover. For these districts, the Perceived Attributes of relative advantage, compatibility, complexity, trialability, and observability have all had favorable results leading to confirmation of the OER innovation on the Innovation-Decision Process (Rogers, 2003).

Current literature confirms the need for systems and policies at the state level in order to positively impact the diffusion of OER. What was not found in the current research was the critical need at the local level for systems and policies for OER adoption. In order for OER adoption to be sustained, the process must be internalized. State action will take some of the heavy lifting off of individual districts, but districts must lead with systems and policies and not an OER advocate who can move

or be replaced. This focus on systems and policies is the third theme that surfaced from the data.

Summary of themes. Upon conducting the research to determine what led Missouri's #GoOpen districts to adopt OER, the researcher found that not all of the districts participating in the study adopted OER. Although each participating district had chosen to sign on with the #GoOpen campaign, various obstacles caused two of the districts to not proceed past sign on and two of the districts to halt their OER initiatives. The three themes that emerged from the data helped answer the questions regarding how and why OER were adopted. Those themes were: (a) a need for time and professional development, (b) a focus on reallocation of money rather than saving money, and (c) leading OER adoption with systems and policies instead of relying on an OER advocate. As a result of the circumstances and actions in five of the districts, an active OER initiative had been sustained, and in one participating district, the OER adoption process had been reengaged after a renewed focus on what it takes for sustainability.

Limitations. It was the researcher's intent to conduct a qualitative study that produced reliable, usable data for educators, districts, organizations, and policy makers moving forward with OER utilization and adoption. Because qualitative research, and particularly phenomenological research, relies heavily on researcher interpretation and synthesis of the data (Korstjens & Moser, 2017; Queirós et al., 2017), triangulation is important to the research process to verify accuracy, eliminate bias, and establish validity (Creswell & Poth, 2018). For this study, triangulation of the data was accomplished through multiple reviews of interview session recordings and transcripts, member checking of transcripts and narratives, and collection of district-provided documents. In

addition, to help establish credibility, the researcher created an audit trail, which served as a transparent description of the steps taken from the start of the research project to the reporting of the findings (Nowell et al., 2017; See Appendix E). Every attempt was made to eliminate variables that could impact the results of the study; however, some limitations existed. The identified limitations for this study are listed and discussed below:

1. individual participant perspectives,
2. potential for participant dropout or unwillingness to participate,
3. varying degrees of leadership roles or time in the roles and varying degrees of OER knowledge of participants,
4. inability to meet in person for interviews due to COVID-19 pandemic, and
5. researcher perception and possible bias.

It was the intent of the researcher to interview a participant from each of the 13 #GoOpen districts in Missouri; however, three districts chose not to participate. Throughout the course of the study, the researcher found varying degrees of OER use and implementation in the participant districts. Additionally, participants involved in the study had varying leadership experience with OER and varying knowledge of OER. However, as indicated by research, OER use is often sporadic, inconsistent, and unintentional (Allen & Seaman, 2017; Martin & Kimmons, 2020; Tang et al., 2020). The purpose of the study was to understand how the OER adoption process occurs; therefore, all information collected was beneficial as the researcher sought to identify common themes.

Acknowledging possible researcher bias is important in establishing credibility for a research study (Creswell, 2014). While the researcher was aware of OER and gained further understanding through the completion of the literature review, the researcher had not been involved in an OER adoption process and was unaware how districts undertook that process. In addition, utilizing a semi-structured interview process with open-ended questions allowed participants to share their individual lived experiences without preconceived ideas from the researcher guiding the interview.

An additional limitation involved the potential misunderstanding of the terms *curriculum* and *resource*. This limitation was not identified prior to the collection of data, but it became evident throughout the interview process. As reported in multiple interview transcripts, the terms curriculum and resource are often used incorrectly and interchangeably. For some districts, adopting OER was reported as equivalent to adopting a set curriculum. This misunderstanding can potentially limit the understanding of OER and how and why the adoption process occurs. This limitation will also be discussed later when recommendations for further research are made.

Triangulation of Data. Throughout this study, the importance of multiple data sources has been included and explained. In order to substantiate the data collected from the interviews, the researcher utilized member checking of the transcripts and requested district documents related to OER planning, professional development, and budgeting. Although not every district provided documents, the planning documents and professional development agendas and presentations that were collected helped validate participant responses and demonstrate the impact on sustained OER implementation. Additionally, the original intent of the researcher was to collect budget documents

detailing the money saved by utilizing OER. Yet, budget documents were not provided by any of the districts. Even in districts with active OER initiatives, budget documents were not available; however, the absence of the documents supported the focus on reallocation of funds. Districts that had internalized OER use were focused on how to best spend the money to improve teaching and learning and were not focused on how much money was saved by not making proprietary purchases. While documents collected occurred differently than the researcher originally proposed, the documents collected did aid in the triangulation of the data and supported the accuracy and validity of the findings.

Professional Implications

Inconsistencies evident throughout the OER adoption process in Missouri #GoOpen school districts have limited the rate and degree of widespread OER adoption. Even when presented with the same information or when attending the same meeting, the path to OER adoption, or lack of adoption, and sustained implementation, or lack of sustained implementation, have been dependent upon the attitudes and actions of individual district leaders. Understanding the common themes that were encountered during the adoption process can benefit educators and school districts, influence state and national organizations advocating for OER, and impact OER policy development. The implications for practice will be discussed in the following section and will include connections to current literature and participant interviews.

Prioritize time and professional development. As noted by participants, time is a commodity that is in short supply for educators. While research shows that training and professional development are needed (Forgette, 2020; Huang et al., 2020; Martin &

Kimmons, 2020; Tang, 2020), providing the training and professional development requires a focused effort based on policies and institutional practices in order for the benefits to outweigh the drawbacks. Careful planning and preparation are needed to provide the required professional development to achieve sustained OER adoption.

As one participant stated, widespread OER adoption would require giving teachers “the PD and the time and the support that they would need to do it” (P8). If considering OER adoption, it is essential for educators and district leaders to understand that effective OER adoption requires training and professional development. This can be done through systematic planning and collaboration with key players throughout the district as calendars are set and professional development plans are made.

To further impact the rate and degree of OER adoption throughout the state of Missouri, the state department of education should consider its role in instructional technology and OER implementation. Other states have already demonstrated how to coordinate OER planning and curate OER resources. By establishing dedicated staff at the state level, the Missouri Department of Elementary and Secondary Education (DESE) could do the heavy lifting for school districts so that resources are not wasted as individual districts redundantly search for resources and trainings. When led by a focused initiative at the state level with appropriate leadership and staffing, the impact can be more effective and efficient, as demonstrated by the states that currently have that in place (Tate, 2018; Tepe & Mooney, 2018).

Focus on reallocation of resources. Research indicates that utilization of OER can save districts money over traditional textbooks (Johnson et al., 2014). However, focusing on saving money alone can lead to adoption barriers. As one participant

explained, teachers can view OER as the district's way of "being cheap" and requiring teachers "to do more work" (P4). In contrast, districts that focus on reallocating the resources look at how to "spend that money in the right way" (P3).

In one district, that meant the money was reallocated "so every year the teachers got that portion to spend on themselves" (P6) and their professional learning. As a result of that reallocation, more time was spent evaluating and writing curriculum and selecting resources to support the curriculum. However, the discrepancies from district to district indicate that more training is needed. While some districts may report being aware of OER, this study demonstrates that full awareness and knowledge of OER have not been achieved if a focus on curriculum and a reallocation of resources have not been identified.

Furthermore, the misunderstandings regarding the differences between curriculum and resources indicate that additional training is needed for district leaders and teachers. This can take place at the district level; however, it would be more practical and efficient to address it at the state level including through regional professional development groups and at colleges and universities. For OER to be implemented with the best results and with lasting results, it is critical that all areas of implementation and impact are understood.

Develop systems, policies, and state-level OER leadership. Participants in this study detailed the work done at the district level to explore, evaluate, and adopt OER. However, without an intentional effort to develop systems and policies, OER work can end or be reversed with district turnover or change in leadership. In addition, without state leadership and support, the diffusion of OER will not become

widespread. Instead, the work will be completed in localized school districts based on individual educator and administrator discoveries of OER and not because of focused guidance or training from the state.

The majority of participants in the study expressed the need for state-level OER leadership in Missouri, but several requested to remain anonymous. One participant speculated, we will not have “widespread OER adoption at the state level until we have a bigger voice.” Another participant shared, “If there was a state initiative, I think that would make a big difference in terms of being able to help districts.” Currently, many districts are made aware of OER by enthusiastic advocates at the local level. Until the state takes a leadership role, individual, localized districts will continue to learn about and utilize OER. In doing so, the work will be redundant and labor intensive, but it will be critical for district leaders to put systems and policies in place so that turnover or a change in leadership does not cause an OER initiative to halt or fail.

Although Missouri is not a #GoOpen state and does not currently have OER leadership at the state level, OER advocacy and support still continue to grow at the national level. To help raise awareness of #GoOpen and encourage greater participation, in 2018 the U.S. Department of Education partnered with ISKME to involve other organizations to help spread the word (U. S. Department of Education, n.d.). As discussed in a recent email, ISKME will continue advocating for and supporting OER use and has developed an action plan that “outlines a commitment to building K-12 OER engagement to advance equity, through working groups initially focused on advocacy, professional learning, quality vetting, and policy” (A. Evans Godwin & C. James, personal communication, Feb. 17, 2021). This can provide a network of support for

Missouri schools as long as a system is in place to disseminate information to all Missouri schools. While OER is continuing to move forward, without connections and leadership at the state level, Missouri could fall behind.

Recommendations for Future Research

As this project was being formulated, it was the intent of the researcher to develop a study that would examine the OER adoption process in Missouri's #GoOpen districts in order to understand why and how OER is adopted and to determine what impacts the rate and degree of adoption. Throughout the analysis of the data, commonalities, patterns, and themes emerged; however, studying the adoption process also revealed opportunities for future research. This study presents a starting point that encourages further research related to differing methodologies, redefined samples, unanticipated findings, and identified limitations.

Quantitative study of OER use in Missouri. One area for future research could include a quantitative study of OER use and adoption in Missouri schools. While this qualitative study examined the adoption process of specific districts, the rate and degree of adoption could be examined utilizing numbers and quantities. Doing so could provide further understanding of where OER has diffused and identify subject areas and grade levels most commonly and most effectively utilizing OER.

Diffusion, learning outcomes, and teacher perception in #GoOpen states. An additional area of recommended research involves the states that have decided to sign on with the #GoOpen initiative. As previously stated, Missouri is not a #GoOpen state (Tepe & Mooney, 2018). Research examining the diffusion, outcomes, and teacher

perceptions in one or multiple #GoOpen states could contribute to the body of research on OER state leadership and how adoption practices are impacted.

Student and teacher perceptions and academic outcomes in Missouri.

Furthermore, a study would be recommended to examine the perceptions of teachers and/or students in Missouri utilizing OER. Studies regarding perceptions and attitudes of students and teachers related to OER use have been conducted in other states (de los Arcos et al., 2016; Morales & Baker, 2018) but not in Missouri. In addition to perceptions and attitudes related to OER use, academic outcomes of Missouri schools utilizing OER could be studied.

Preservice teacher and administrator programs in Missouri. As evidenced by the data gathered and by current research, a lack of OER awareness still exists. In addition to the insufficient knowledge of OER in K-12 education, OER awareness is lacking in higher education (Allen & Seaman, 2014; Belikov & Bodily, 2016; Brown et al., 2020; Martin et al., 2017; Van Allen & Katz, 2020). Research is recommended at postsecondary institutions in Missouri involving preservice teachers in order to examine what, if any, training is taking place with future teachers in Missouri regarding OER use and adoption. In addition to preservice teachers, administration programs could and should be studied as well to determine what training is being provided to future administrators regarding OER selection and the adoption process.

OER use and learning outcomes following COVID. An additional area of recommended research involves OER and the COVID-19 pandemic. Once the pandemic hit, schools, states, and countries which had already utilized or initiated adoption of OER were more prepared to transition teachers and students to distance and virtual learning

(Ossiannilsson et al., 2020). As one participant in this study with an active OER initiative explained, “We were very well prepared for virtual, far more than other schools were” (P1). Research could be conducted to examine learning outcomes and learning loss in schools with active OER initiatives compared to those without.

Understanding curriculum and resources. A final area of recommended research involves qualitative and quantitative studies to explore the level of understanding of the meanings of curriculum and resources. An identified limitation of this study was the misuse and interchanging of the terms curriculum and resources. Because some confusion exists, it could have impacted the rate and degree to which OER was adopted. If a study reveals significant misunderstanding of the terms, then further education and possible reworking of teacher and administrator training programs could be needed in order for OER to be effectively utilized.

Conclusion

At the root of the OER movement is the belief that knowledge is meant to be shared (Havemann, 2016; Tonks et al., 2013; Wiley, 2010). Because of the growth and availability of digital content, sharing and reusing and revising knowledge is easier now than ever before (D’Antoni, 2008; Martin & Kimmons, 2020). Although progress has been made, formal district-wide adoption and state support of OER are irregular and inconsistent. While studies demonstrate the usefulness and positive outcomes of adopting OER (Hilton et al., 2019; Kaufman & Campana, 2019; Kimmons, 2015; Robinson et al., 2014), research to understand what leads to an OER commitment and how to initiate the adoption process is lacking. Just as OER adoption in K-12 districts is lacking, so is the research regarding why and how school districts navigate the OER

adoption process (Malbon, 2019; Otto, 2019). It was the researcher's intent, through this qualitative study, to add to the body of research regarding how and why OER adoption takes place in K-12 school districts.

By utilizing the method of phenomenology, the researcher was able to examine the common lived experience of the selected participants. It was the goal of the researcher to complete an unbiased phenomenological study regarding the OER adoption process in Missouri's #GoOpen districts. To analyze the rate and degree of OER adoption, the researcher utilized Rogers' (2003) Perceived Attributes of Innovation and the Innovation-Decision Process. Through these components of Rogers' diffusion of innovations theory, the researcher was able to examine how and why the rate and degree of OER adoption were impacted. Of the 10 districts that participated in the study, five had active OER initiatives, one was previously halted but was now reengaging, two were halted, and two never continued the adoption process following early exploration.

Because of lack of OER awareness and understanding, two districts did not proceed past the knowledge step on the Innovation-Decision Process. An additional district determined that OER could provide relative advantages but compatibility for the district was not viewed favorably, so the district did not move past the persuasion step. A majority of districts found challenges with implementation because of the complexity attribute, with "time" being the biggest concern. Unable to overcome the complexities of implementation, two districts halted their progress, although one was currently reengaging. And finally, the five districts with active OER initiatives found favorable results with the Perceived Attributes of Innovation. At the time of the study, four districts had a confirmed OER initiative that had become an expected practice, and one

district was in the implementation stage moving to confirmation. Utilizing the Perceived Attributes of Innovation aided the researcher in examining how, why, and to what degree OER was or was not adopted. Although utilized in this study following the process, it could be beneficial for school districts to review and understand the Perceived Attributes before and during adoption of a new innovation in order to have a focused, sustainable initiative.

The study did not yield, and the researcher did not hope to yield, specific steps that an educator, school, or district can take to guarantee success with OER; instead, the researcher sought to understand what led to an OER adoption and how that adoption took place. This study of the OER adoption process in Missouri's #GoOpen school districts found common frustrations and obstacles that hindered the rate and degree of OER adoption. In districts with ongoing OER initiatives, systems were in place to address professional development needs and sustainability of OER use. Although some support and expertise can be found from local OER advocates and specialized networks, the lack of leadership at the state level has left OER awareness, understanding, and utilization up to forward-thinking individuals at specific districts scattered throughout the state.

Upon initial OER exploration, a potential user will find that OER are free resources. While "free" can provide the preliminary excitement to pursue investigation, sustained OER initiatives take more than interest and excitement. The findings from this study revealed three themes that have a direct impact on the rate and degree of OER adoption: (a) a need for time and professional development, (b) a focus on reallocation of money rather than saving money, and (c) the need to lead OER adoption with systems and policies instead of relying on an OER advocate. Based on the themes, professional

implications were identified that should be considered by educators, school districts, state organizations, and policymakers regarding the ongoing needs of OER awareness and insight into how the OER adoption process takes place. In addition, this study has generated a starting point to encourage further research in areas impacting OER adoption.

It is unfortunate that so much of the work with OER is redundant and repeated in individual school districts as they research, discover, evaluate, and curate OER. If the OER movement is based on the belief that knowledge is meant to be shared (Havemann, 2016; Tonks et al., 2013; Wiley, 2010), then more must be shared. This study explored the inconsistent OER practices in Missouri school districts and revealed themes that explained the challenges encountered during the adoption process. Trends often influence and guide education; however, OER is not a passing trend or phase. OER is a way to provide customizable, equitable resources to all students. The COVID pandemic and virtual learning prompted additional discussions of OER. With groups and organizations like the U.S. Department of Education, UNESCO, ISKME, and others supporting and advocating for OER, OER use will continue to grow. However, what is yet to be fully established is how to inform, support, and sustain adoption practices in school districts in order to facilitate widespread OER diffusion in Missouri and beyond.

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Appendix A

#GoOpen District Permission for Study to Take Place

(Only one district, district E, required permission from the school district for the study to take place. The researcher completed the paperwork provided by and required from the district.)

Appendix B

Participant Informed Consent

Thank you for agreeing to participate in this phenomenological study to analyze the implementation and adoption process of open educational resources in Missouri public schools. This research has been approved by the Southwest Baptist University Research Review Board. You may contact Suzie Morrow, Chair, Research Review Board at sxmorrow@sbuniv.edu for any questions or concerns you may have related to this research. By participating in this research, you have the opportunity to add to the current body of research regarding how and to what degree OER is implemented and adopted in K-12 school districts.

In this interview, you will be asked to relate the personal experiences you have had as a #GoOpen district. The central question guiding the study is: What determined the decision to formally adopt open educational resources in Missouri #GoOpen districts? The interview will not last more than an hour.

By agreeing to participate in this interview, you understand that you will be recorded. All answers and information will be treated confidentially. Your information will be coded, and your identity will remain anonymous. The only identifying information for your district is the publicized sign-up as a #GoOpen Ambassador District or a #GoOpen Launch District.

Your participation in this study is completely voluntary, and there are no foreseeable risks associated with this research. You can withdraw from the interview or decline to answer at any point. If you have any questions about the interview or your responses to the questions, you may contact Karla Spear by email at kspear@halfwayschools.org.

In order to participate, this informed consent is required. If you agree to allow me to use your interview responses for research purposes, please sign below. Thank you for your time and participation.

SIGNATURE OF PARTICIPANT

DATE

SIGNATURE OF RESEARCHER

DATE

Appendix C

Conversational Questions to Begin the Interview

How many years have you worked in education and in what roles?

How many years have you served in your current position?

Were you involved in the initial #GoOpen sign-on by your district?

(If no, when did you become involved?)

Appendix D

Central Research Questions and Subquestions

This study was guided by the following central question: What influenced the decision to formally adopt open educational resources in Missouri's #GoOpen districts?

- The interview will begin with the question – *What influenced your district to formally adopt open educational resources?*

The following subquestions helped frame the study and will be used to guide the interviews as needed:

1. *What circumstances influenced the awareness of OER?*
2. *What key players influenced the decision to explore OER?*
3. *What actions influenced the adoption of OER?*
4. *What obstacles influenced the rate and degree of adoption?*
5. *What outcomes were observed following OER adoption?*

Appendix E

Audit Trail Used for the Study

- Approval by Southwest Baptist University Research Review Board
- Contact central offices at participating districts for written permission to conduct the study
- Interviewees contacted to complete informed consent and schedule interview times
- Researcher completes self-reflective journaling to identify any bias or preconceived ideas regarding outcome
- Interviews conducted, recorded, and secured on password-protected device
- District documents collected from participants following interview including planning materials, professional development plans, and budgets
- Researcher completes self-reflective journaling following each interview
- Interviews transcribed upon completion and returned to participant for member checking
- Researcher analyzes data
- Data cleaning and patterns and themes identified
- Themes compared to district documents and researcher field notes
- Narratives written for individual participant's what experienced and how experienced
- Composite narrative written to describe the phenomenon
- Rogers' diffusion of innovations theory applied to determine impact of experiences on rate and degree of adoption