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Teacher Perceptions of Open Educational Resources in K-12 Mississippi Classrooms

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TEACHER PERCEPTIONS OF OPEN EDUCATIONAL RESOURCES IN K-12
MISSISSIPPI CLASSROOMS

By

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A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of
the requirements of the Sally McDonnell Barksdale Honors College.

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ABSTRACT

In this thesis, I examine K-12 teachers' perceptions and use of open educational resources (OER) in Mississippi. I used a mixed methods approach to collect data from current teachers at one Mississippi school district. I conducted interviews with, observed, and surveyed 34 teachers at this district. I coded and analyzed the data to draw conclusions. I found that teachers were using OER as supplemental materials in this district, even if they did not know the term OER. Additionally, teachers generally found OER increased flexibility and student engagement in the classroom, especially when paired with technology, but saw several challenges to further adoption of OER. Based on these findings, this study concludes that more teacher training in how to use, find, and adapt OER and the creation of a curated OER bank could be useful for K-12 schools in Mississippi.

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CHAPTER 1: Introduction

In this section, I will provide a brief overview of the problem, purpose, and question presented in this study. This research inquiry investigated open educational resources (OER) in a K-12 school in Mississippi. The open educational resources movement is dedicated to making learning materials available without restrictions imposed by traditional copyright laws and encouraging the free exchange of information (Office of Educational Technology, 2019). Although open resources have been extensively investigated in higher education, research into OER in K-12 classrooms is at an early stage.

Defining the Problem

One of the central components of a K-12 classroom is the curriculum used to teach a student. While curriculum is traditionally defined by and based on the textbook used in the classroom, open educational resources have added new options for K-12 teachers. Open resources have the potential to increase equity among students by giving them the most up-to-date, high-quality content. OER licensing also allows teachers to adapt and customize learning materials to meet the needs of their students. Additionally, OER offers the potential to save school districts money (Kimmons, 2015). However, for K-12 schools to benefit from OER in these ways teachers and educational professionals must have a deep understanding of the design, capabilities, and licensing of OER, as well as potential barriers to OER adoption. Little research has been done to measure if

teachers are using OER in Mississippi K-12 classrooms, how they are using it, and the effect of OER on student learning outcomes (Blomgren and Macpherson, 2018).

Purpose of this Study

The purpose of this study is to investigate the use and perceptions of OER in one school district in Mississippi. The school district that was used in this study was Oxford School District in Oxford, MS. I used a mixed-methods approach to gather data from teachers at this school district. At the end of this study I interpreted the data that was gathered and, in this thesis, offer some actions that could be taken by the Mississippi Department of Education and Mississippi School Districts. The central question of this study is as follows: How do teachers perceive, implement, and use open educational resources in Mississippi K-12 classrooms?

CHAPTER 2: Literature Review

In this section, I will provide information about the definition, history, and context of open educational resources (OER). OER are becoming a game-changer in how schools purchase, modify, and deliver curriculum to K-12 students. With the potential to save money, personalize curriculum to local context, and enable frequent updates as information changes, open educational resources provide benefits that traditional textbooks cannot. Yet schools across the nation, and particularly in Mississippi, have been slow to investigate and adopt these resources (Cadran, 2019).

Definition of Open Educational Resources

Open educational resources can be defined in different ways. The Hewlett Foundation defines OER materials as "high quality teaching, learning, and research resources that are free for others to use and repurpose" (Hewlett Foundation, 2015, para. 1). Another definition provided by UNESCO describes them as "teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions" (UNESCO, 2019, para. 1). This definition highlights licensing, which is the distinguishing characteristic of OER materials and separates them from other free materials on the internet. Authors of OERs must obtain an open copyright license, most often Creative Commons, which dictates how the material may be used, reused, adapted, and shared. Without this license, a

source is not open. These openly-licensed learning materials come in a variety of forms, including entire courses, textbooks, videos, modules, tests, courseware, journal articles, and other configurations. Although most of these materials are available online, some can be printed and distributed. (Hilton and Laman, 2012). There is also a variety of providers of OER content, such as Openstax, The Saylor Foundation, Lumen Learning, MIT OpenCourseware, and Washington State's Open Course Library. These providers represent the public and private sectors, as some are institutions of higher learning, others are private companies, and still others are non-profit organizations. These providers serve K-12 needs, higher education users, and the general public.   The majority of OER support has been provided through public funding (Henderson & Ostashewski, 2018), such as state and federal grants; however, some private organizations, like the Gates Foundation and the Hewlett Foundation, have also financed OER initiatives.

The 4 R's of OER

Hilton, Wiley, Stein, & Johnson (2010) created four central tenets to describe the concept of openness in open education. They labeled it as the 4 R model. These tenets include:

"1. Reuse: the right to use the content in a wide range of ways (e.g., in a class, in a study group, on a website, in a video)

2. Revise: the right to adapt, adjust, modify, or alter the content itself (e.g., translate the content into another language)

3. Remix: the right to combine the original or revised content with other material to create something new (e.g. incorporate the content into a mashup)

4. Redistribute: the right to share copies of the original content, your revisions, or your remixes with others (e.g., give a copy of the content to a friend)"

Emergence of OER and OER in Higher Education

Although scholars have conceptualized frameworks for open learning for some time (Mackenzie, Postgate, & Scupham, 1975; Rumble, 1989), the OER movement really took shape during the technology age and was accelerated by the proliferation of the internet. Many have credited MIT's creation of their Open Courseware Initiative in 2001 as the kick starter for other OER developments (Pawlowski & Bick, 2012). The term "open educational resources" first emerged in 2002 during a UNESCO *Forum on The Impact of Open Courseware for Higher Education in Developing Countries* (Hylen, 2006).

Since then, the scope of OER has grown rapidly, reaching users worldwide. According to Wiley (2006), universities in Australia, Brazil, Canada, Hungary, India, Iran, Ireland, the Netherlands, Portugal, Russia, South Africa, Spain, Thailand, the U.K., the U.S., and Vietnam have OER initiatives. Furthermore, several studies are examining OER's potential to serve the educational needs of developing countries which lack sufficient resources (D'Antoni, 2008; Richter & McPherson 2012). Part of this global outreach is being done by organizations such as Curriki, which is working to create an online repository of quality, expert-reviewed open educational resources that will act as a "one stop shop" for delivering content globally (Hylen, 2006).

Although OER have become an international phenomenon, the majority of OER funding, adoption, repositories, research, and initiatives has been focused on higher

education rather than K-12. The concentration in higher education likely stems from the freedom of choice in curriculum that college professors and administrators have (Blomgren and Macpherson, 2018). The driving factor for OER adoption, as opposed to traditional textbook adoption, in higher education seems to be lowering the cost of attendance for students, as OER can be freely printed and shared (McMurtrie, 2019). Before the use of OER in higher education, publishers of traditional textbooks were able to have "high profit margins due to the niche market (Koch, 2006, p.38)," creating higher and higher costs for students. Open educational resources that are adopted into the classroom provide free access for students. Additionally, OER in higher education can improve access for students by eliminating proprietary logins and can ease the incorporation of materials into instruction, as the instructor does not have to go through any additional permissions (Blomgren, 2018).

Several studies have attempted to gauge student learning outcomes from the use of open educational resources in higher education. One study by Hilton (2016) synthesized nine studies about efficacy and student perceptions of OER. Results from across these studies indicated that students generally achieve the same learning outcomes when OER are utilized and simultaneously save significant amounts of money. Hilton also found that the majority of students perceived OER materials to be comparable or superior quality to traditional textbooks, although the author acknowledged that these findings could be influenced by the cost savings that students experienced while using OER. Belikov and Bodily (2016) suggested another benefit of OER in higher education is the flexibility to adapt open content to an instructor's own class and individual needs. For example, a professor in a biology class devoted to the life cycle of plants could adopt

several short OER materials related to that topic or adopt an OER biology textbook and delete sections unrelated to that topic, thereby saving students both the cost of a traditional textbook and the annoyance of paying for a complete textbook and only using one section.

Overview of OER in K-12

The OER movement has begun to trickle down to K-12 classrooms with large-scale efforts to extend the use of OER to school districts beginning as early as 2011 (Ishmael, 2018). K-12 schools can use OER in a variety of ways. According to a Boston Consulting Group's 2013 report, K-12 classrooms are using OER in three ways. The first is using OER materials to enrich instruction, such as using a video or online demonstration to supplement an activity. In this usage a traditional textbook is maintained. For the second form of OER use, a fully-developed OER resource replaces a traditional textbook but is used just like a traditional textbook. The third use is OER as "the basis for a variety of new learning models, where the teacher works to engage student learning from a new perspective and differentiate instruction for unique needs and interests of students" (Boston Consulting Group, 2013, p.2). For example, materials can be differentiated according to students' readiness levels or to meet the needs of students who need individualized support. However, according to the report, even though this may be the optimal use of OER, very few schools are actually using OER in this way.

In fact, the way in which OER are used in classrooms varies widely among states, districts, and even schools within the same district. This disparity is because the adoption process has not been uniform throughout the country, with many K-12 teachers still

lacking awareness of OER's existence at all. The same 2013 report from the Boston

Consulting Group found that out of 377 K-12 educators, 21% reported not knowing much

about OER, and 28% reported that they have never heard about it. Drives to use OER can

take place in a variety of ways including district plans, state movements, and national

initiatives. According to Maylahn's (2017) survey of K-12 Instructional Technology

leaders, 80% of respondents have OER in their district "digital content strategy."

There has also been action to spread OER on the state level. A good example is

the state of New York. New York used funds from Race to the Top, a national education

program, to develop and curate openly licensed curricula, called Engage NY, that align

with their standards (Ishmael, 2018). Engage NY has become one of the most popular

sources of OER in K-12, with New York officials citing over 20 million downloads in the

United States and around the world (Cavanagh, 2015). Another report by Cadran (2019)

for the Council of Chief State School Officers found that 20 states are currently planning

OER initiatives. According to Cadran's (2019) report, these initiatives put forward plans

to create supportive policy for OER adoption, check for high quality materials that align

with state standards, organize or create easy-to-use OER for teachers and districts, fund

OER projects, and support collaboration.

In 2015, the U.S. Department of Education launched the #GoOpen campaign to

encourage the use of OER throughout the country. Schools like Williamsfield School

District in Illinois and Hollister R-V School District in Missouri that chose to participate

in the campaign committed to making the move to OER in their schools and were

provided with support and resources to successfully transition to OER. Some other

schools have partnered with universities to learn more about OER, while still other

schools have received grants from non-profits, foundations, and private sector companies, like the Hewlett Foundation, which has been one of the largest supporters of the OER movement. Additionally, even if a school district is not involved with an initiative or grant, some teachers are using OER in their classrooms independently (Cadran, 2019).

Why K-12 Classrooms are Choosing OER

Schools that are making the switch to OER seem to be doing so for a variety of reasons. Purported benefits of using OER in the K-12 classroom include lowering the cost of materials long-term; creating resources that strictly align to state standards; establishing a pathway for collaboration, sharing, and partnerships among educators; introducing flexible resources into the classroom that teachers can adapt and make relevant to their needs; breaking publishing companies' monopoly on textbooks; and "enhancing the ability for teachers to become content experts in their field" (De los Arcos, Farrow, Pitt, Weller & McAndrew, 2016, p. 25).

One of the most significant aspects of OER that may be leading to adoption in K-12 classrooms is cost. Because OER are free, they have the ability to significantly lower the cost of curricular materials in K-12 schools. This benefit becomes especially appealing as public-school funding continues to be an issue for many states. Additionally, curriculum materials continue to "represent a significant, recurring cost to public schools" (Wiley, Hilton, Ellington, & Hall, 2012). Research from the 2015 Annual State of the Educational Marketplace report found that total K-12 spending for instructional materials reached approximately 11.8 billion dollars (Cavanagh, 2015). According to T.J. Bliss, a program officer who studies open educational resources for the Hewlett Foundation, schools that

eliminate traditional textbooks and primarily use open resources achieve the most cost-saving benefits of OER (Cavanagh, 2015). Bliss posits that although districts considering the switch to OER will have to dedicate time and money in preparing the materials, these schools will save the most money in the long run.

A study by Wiley, Hilton, Ellington, & Hall (2012) examined schools from three of the four largest public districts in Utah. They found that OER could provide cost-saving benefits when groups of teachers across a district used one version of a text, got rid of irrelevant information, printed in black and white, and printed most of the materials at one time. Following these rules, schools reduced costs by 40% in the first year (the period of time with the most adaptation by teachers) and over 50% in subsequent years compared to the cost of using licensed textbooks. The researchers suggested that funds saved from eliminating the purchase of a licensed textbook could be shifted to other areas of need in school districts, like professional development or technology rollout. Another 2018 report by the Friday Institute for the North Carolina Department of Public Instruction made several suggestions to reduce cost in OER materials: leverage existing resources, reallocate funds to provide support for staff using OER, and secure continuous funding. However, very little research has been done on the overall cost-saving of OER materials in schools, so more study must be given to determine the extent to which OER could save money for school districts.

Although cost-saving benefits may exist, many K-12 educators' primary worry is whether OER materials are the right materials to help students learn. There has been limited research done on whether or not the use of OER actually improves student outcomes in any level of educational learning. Most of the limited research in this area has looked at

students in higher education and has suggested that student grades in higher education are not affected by a teacher's use of OER (Winitzky-Stephens & Pickavance, 2017). However, more research needs to be done to see if the same results are found in K-12 classrooms.

For K-12, there have been two major studies that have looked at the outcomes of replacing traditional textbooks with open textbooks. One of these studies, by Wiley, Hilton, Ellington, and Hall (2012), looked at how using open textbooks in classrooms of seven middle and high school teachers with 1,200 students affected the classroom experience during one academic year. Their findings indicated that adoption decreased the school districts' costs by over 50% but had no impact on students' grades. Robinson, Fischer, Wiley, and Hilton (2014) extended this research by including more teachers, students, and subject areas. Findings from this study showed that students actually had higher test scores on end-of-year state standardized science tests when they used open textbooks, even when controlling for other factors. However, this was not the case for all subjects, with no significant differences in student outcomes for some other academic courses.

Scholars have also looked at teachers' perceptions of OER materials. Some studies have suggested that teachers may perceive OER as more useful than traditional, copyrighted materials. Kimmons (2015) asked K-12 teachers to judge the effectiveness of their traditional textbook, an open textbook, and an open textbook that they adapted themselves. The results indicated that open textbooks were rated 22% higher than copyrighted textbooks. Furthermore, the open/ adapted textbooks were rated 16% higher than the open textbooks and 38% higher than the copyright-restricted textbooks. Open

textbooks were rated as superior, and adapting the OER materials was of even higher value. Kimmons (2015) argued that adapting the resources was key to the effectiveness of OER materials because K-12 teachers "are the only professionals qualified to recognize the needs of their students and the realities that they face in their classrooms."

Another study by De los Arcos, Farrow, Pitt, Weller and McAndrew (2016) found that teachers rarely use an OER without personalizing it to suit their students' needs. This study seemed to highlight the agency of individual teachers in manipulating open educational resources to work effectively for the students in their classrooms, and, in that way, the study reinforced Kimmons' (2015) argument that teachers' understanding of their students' needs is intimately related to their adaptation of OER materials

Barriers, Criticisms, and Challenges of OER

Although the use of OER is growing in K-12 school systems, several barriers to adoption have made the spread of OER slower in this arena compared to that of higher education. While over 87% of U.S. university instructors report being aware of OER, only 50% of K-12 educators report being aware of OER (Boston Consulting Group, 2013). Furthermore, as the Boston Consulting Group's report and others have noted, fewer K-12 open educational resources exist than OER materials for higher education. Clearly, lack of awareness and materials are fundamental barriers to OER adoption in the K-12 community.

Some K-12 teachers using OER have also reported additional challenges. De los Arcos, Kimmons, McGreal, & Weston (2017) surveyed schoolteachers using OER and asked what difficulties existed in their use of OER. A majority of respondents felt their

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biggest challenges related to finding suitable resources in their subject area, not having enough time to find satisfactory resources, and not knowing where to find materials (De los Arcos, Farrow, Pitt, Weller & McAndrew, 2016). The Boston Consulting Group's 2013 report substantiated these results and reported teachers' frustration over finding quality OER, as there is no "clear OER destination" (p.9).

Some OER liaisons working with school districts report similar issues. Roy Kaufman and Andrew Campana work with the Copyright Clearance Center, which has been helping states, school districts, curriculum developers, and funding agencies provide support to OER initiatives. Kaufman and Campana's 2016 article provided an overview of some of the barriers and nuts and bolts challenges they face in working with schools and curriculum developers. These include problems with technology (lack of access, technical difficulties, faulty links in the materials); data security and student privacy; questions as to who evaluates the quality of the materials; copyright issues; scope, sequence and alignment challenges; and sustainability of OER over time. They note that particularly in poorer and rural states there is a digital divide that is also troublesome when implementing open educational resources.

Further critiques of OER include additional strain on teachers, OER non-alignment with state standards, and a lack of complete open curricula that includes items like teacher manuals, test banks, and activity guides. In a 2017 *Hechinger Report* article, Larry Singer, CEO of Open Up Resources, explained, "Teachers are underpaid to stand and deliver, much less to develop their own curriculum or piece it together using OER parts online" (Mathewson, 2017, para. 10). Open Up Resources is a non-profit that offers complete core curricula as OER, but Singer notes that his organization is one of the few that offers this

completely packaged option. Furthermore, Singer emphasizes that district officials are most concerned that the curricula that they adopt are state standards-aligned, and districts would rather pay for copyrighted material that is standards-aligned than use open materials that are not. The 2018 report from the Friday Institute agrees with Singer about the need for consistency in OER curricula. This report notes that piecing together OER materials could result in an uneven experience for students. Other researchers have noted that some OER does not include assessment materials like test banks (Kortemeyer, 2016). Kortemeyer argues that ideally assessment should be integrated into the course materials and provide feedback for both the instructor and the students. He says that the current OER landscape is inadequate in this area.

The State of Textbooks and OER in Mississippi

In regards to Mississippi, there has been little research on if and how Mississippi K-12 schools are using OER. According to Cadran (2019), Mississippi has expressed interest in learning more about OER and sees value in a national repository for OER materials. However, Mississippi is currently not planning any OER initiatives, promoting policies to support openly licensed materials, or collecting OER learning materials for the state. The same survey indicated that some Mississippi schools are using OER as supplemental materials. According to the Office of Technology and Strategic Services' 2016 *Statewide Educational Technology Guide*, a Mississippi Law (Code of 1972) prohibits districts from replacing traditional textbooks with OER. Therefore, public schools in Mississippi can only use OER as supplemental materials according to state law.

One school district in Mississippi, Columbus Municipal School District, joined the #GoOpen campaign under the Obama administration in 2016 (Pierce, 2017). The district returned their traditional textbooks during the Summer of 2016 and pledged to replace all of them with open educational resources. However, the district superintendent was fired during the early stages of implementation of the program, so the initiative was never fully put into effect. No other schools in the state were part of the #GoOpen campaign or any other federal or regional OER initiatives.

However, that does not mean that no one in Mississippi K-12 is using OER or advocating for OER. In fact, the Mississippi Department of Education's 2016 *Statewide Educational Technology Guide* has a short section devoted to OER which notes the benefits of open materials, including the ability to individualize instruction and "address student equality by providing resources to students who might not have access to books, libraries and other sources of information" (p. 21). Additionally, the appendix to the guide has a section listing six repositories of OER materials for K-12 teachers.

Although Mississippi has not been on the leading edge of OER creation or adoption, the potential for OER to provide benefits for Mississippi schools, teachers, and students exists.

CHAPTER 3: Methodology

To address my research question, I undertook a mixed-methods study using surveys, interviews, and observations. In this section, I will discuss my role in the research process, my data collection, and the participants and setting of the research. I will also discuss the procedures through which I analyzed the data.

Background and Role of the Researcher

During my sophomore year of college, I began working as a research assistant for Patricia O'Sullivan, program manager of the Personalized Learning and Adaptive Teaching Opportunities program (PLATO), at the University of Mississippi. Although her work focused on rolling out and researching adaptive courseware at the University, some (not all) of the courseware was open-sourced. This was my first experience learning about OER and is how I became interested in the OER movement. Additionally, through my work with PLATO, I was able to attend and present at the WICHE Cooperative for Educational Technology's (WCET) annual conference in Portland, Oregon, during Fall 2018. WCET is a leader in educational technology in higher education, and while at the conference, I was able to attend workshops focusing on OER and talk with professionals designing, studying, and using open resources.

As a research assistant, I also was also able to help conduct focus groups, create surveys, conduct interviews, observe classes using adaptive courseware, and analyze data. These experiences helped guide my work on this research project. They also gave

me more expertise and confidence in collecting and analyzing data. The research I did

with PLATO for adaptive courseware was also mixed methods, so I gained skills in the

areas of interviewing and observing that I was able to transfer to this work.

Research Bias

Due to my background as an education major and work with adaptive learning as

a research assistant, it is possible I brought a certain amount of bias to the study.

Although I refrained from forming an opinion on the effectiveness or usefulness of OER,

my prior knowledge of the OER movement influenced my study. Additionally, I

graduated from Oxford School District (OSD) in 2016. OSD was the site for my

research. My background as a student at OSD could have influenced participants who

agreed to be a part of the research study.

Method of Research

This study is a mixed methods research approach. A mixed methods approach is

one in which the researcher bases knowledge on pragmatic grounds, uses both open and

closed-ended questions, and employs both quantitative and qualitative data and analysis

(Creswell, 2003).   According to Creswell, a mixed methods approach is useful "to both

generalize the findings to a population and develop a detailed meaning of the view of a

phenomenon or concept for individuals" (Creswell, 2003, p. 23). Because OER is a

relatively new trend, I believed the mixed methods approach would give me a more

nuanced and rich understanding about the perceptions of open resources in the Oxford

School District. There were two qualitative methods used: observational notes; and one-on-one and group interviews. There was one quantitative method used: a survey.

Data Collection

The first qualitative method used in this study was the observational field notes that I took. These were taken during one 50-minute period for a middle school computer science class that integrated OER as supplemental materials. This observation took place in October 2019. I watched and took notes about what OER was integrated into the class, how it was used, and how the students responded to the material.   I recorded these notes on my laptop. While I was there, I was also able to walk around and ask students questions about how they liked the open sources with which they were working. After the observation was done, I analyzed the notes I had taken.

The second qualitative method utilized was one-on-one and group interviews. Four separate interviews took place, and six teachers were interviewed in total, including three middle school math teachers during one interview session, one elementary school teacher, one middle school journalism teacher, and one high school social studies teacher. The first three interviews took place in person, and the last interview was held over email.   The interview questions were written prior to the interviews. All interviews were completed during the Fall semester of 2019. I had a set list of questions that were asked to all the interviewees before the actual interview. During these interviews, I asked participants about their knowledge of OER, if and how they were using OER in their classrooms, and what they perceived were the benefits or drawbacks of using OER in K-

12 classrooms. If the interviews took place in person I used an audio-recording device to record their responses. I then transcribed and analyzed all of the responses.

The quantitative method I used in this study was an online survey. This survey was distributed to all current teachers in grades K-12 at the Oxford School District. The survey included 24 questions that were written to gauge teachers' overall knowledge of and familiarity with OER as well as their perceptions of OER. The survey was anonymous and confidential. The survey was open throughout the Fall semester of 2019. The survey received 27 responses out of 279 possible participants.

Recruitment of Participants

To recruit teachers to take the survey, I started by contacting the Superintendent of Oxford School District. He agreed to share the survey through the monthly newsletter that went out to all current teachers in the district.   For the interviews and observation, I started by emailing teachers whom I knew or in whose classes I had been a student. As I got into contact with them, they had other recommendations for teachers with whom I could speak and I followed up on those recommendations.

Institutional Review Board and Gaining Access

As required by University policy, I began the study by getting permission from the Institutional Review Board at the University of Mississippi. I submitted my research plan to the IRB, and it was approved on August 28, 2019.   I also had to receive permission from Oxford School District's Superintendent, Brian Harvey, before

beginning my research. Once both of those tasks were completed, I was able to begin my

research. My research took place from September 2019 to December 2019.

Participants

        The participants for this study were all current teachers in the Oxford School

District. A total of 34 teachers participated in the study. Twenty-seven of those teachers

filled out the online survey. Six participated in interviews, and one teacher agreed to be

observed. The grade level that teachers taught, their years of experience in teaching, and

the subject areas in which they taught varied widely.   All participants remained

anonymous and signed confidentiality forms agreeing to the research.

Setting

        This study took place at the Oxford School District in Oxford, Mississippi.

Oxford School District is a public school system that serves over 4,250 students. It is

considered an "A" rated school district and is one of the top-performing districts in the

state. Additionally, the district is part of the One to One Digital Learning Program, and

students from seventh through twelfth grades receive laptops as academic resources.

        Although Oxford School District became the setting for this study, Columbus

Municipal School District, in Columbus, Mississippi, was the original district chosen for

this study. Columbus Municipal School District, which was discussed in the Literature

Review, was part of the #GoOpen Campaign and agreed to phase OER into their

classrooms as part of that campaign. However, officials from the District did not respond

to requests to participate in the study. Additionally, it is unclear to what extent the

District actually incorporated OER into classrooms before they chose to withdraw from the campaign.

When it became clear that Columbus Municipal School District would not agree to participate in this research, Oxford School District became the primary site for this study. OSD was chosen for several reasons. First, the district is close in proximity to where I live and go to school, so I was able to maximize my opportunities to gather data. Next, through discussions with current teachers working at the district, I knew that some teachers had some knowledge of OER and were already using open materials in the classroom. This meant that I would be able to complete observations and interviews with teachers actually integrating open resources in their classrooms. Additionally, Oxford School District is a public school district, which is the area of focus I wanted to research for OER in K-12. Last, the district widely uses technology in their classrooms. OER and technology have become inextricably linked as the movement has grown, so I wanted to focus on a school that utilizes technology on a regular basis.

Data Analysis

For the survey responses, I analyzed the quantitative data. I started by carefully reading the responses to each of the questions. I then translated the data into a series of graphs and charts to ease in interpretation and readability. I was then able to compare the data from the survey to that of the interviews and observational notes. This comparison gave me a broader grasp of teachers' knowledge and perceptions of open resources in the classroom as well as students' responses to OER materials in the classroom.

Coding the Data

When coding the data from the two qualitative sources, I closely followed the methods outlined in Creswell (2003) (as cited in Tesch, 1990, p.142-145). I started by transcribing all of the interviews and organizing my observational notes. Following Creswell's suggestions, I first read all of the transcriptions and notes to get a better sense of the entire data set. As I read I jotted down any ideas, common themes, or interesting quotations. I then re-read all of the documents and created a list of major "topics" or themes. I gave each theme a color. Then I went back and started to color code with a highlighter quotes or observations that fit under each common theme. I then recorded all of this information onto an Excel Spreadsheet. This process allowed me to uncover common understandings, thoughts, and findings from the data.

Triangulation

Triangulation of the data was a way to bring multiple perspectives and experiences to this study. Data triangulation is simply defined as using different sources of data (Wilson, 2014). Flick (2002) argues that triangulation can increase the "scope, depth, and consistency of methodological proceedings." My three types of data were interviews, a survey, and observational notes. These three data sources allowed me to have a greater range of information from which to extract common themes and ideas among participants.

CHAPTER 4: The Findings

Through my methods of coding, several common themes emerged from my three sources of data. Some of these themes are related to teachers, some are related to students, and some are related to the resources themselves. These themes emerged from the interplay of the methods of research; that is, they are not specific to any one of the research methods but rather became apparent from consideration of them all. The responses to the interviews, survey, and observational notes complemented each other and did not, for the most part, contradict each other.

In the following section, I will outline each of the six main themes that were uncovered. These themes will detail teacher responses, show connections or occasional contradictions among the three research methods, and provide examples to illustrate the findings. The six major themes are Levels of Teacher Awareness, Flexibility of Materials, Supplemental Use to Textbook, Student Engagement, Technology and OER Connection, and Perceived Barriers to Adoption.

Levels of Teacher Awareness

The first major theme that emerged from the data was that teachers have varying levels of awareness of open educational resources in the K-12 world. When the survey asked teachers if they were using OER in their classroom, the responses were split 50-50. This data is presented in Figure 1. When the survey asked teachers if they were aware of open educational resources, the results showed varying levels of awareness, with 26.92% of teachers stating they were very aware of open educational resources, 19.23% saying they were aware, 26.92% stating they were somewhat aware, and 26.92% stating they

were not aware at all. Figure 2 depicts this data. When asked why they were not using

open educational resources in their classroom, 62% of survey respondents said they did

not know enough about it.
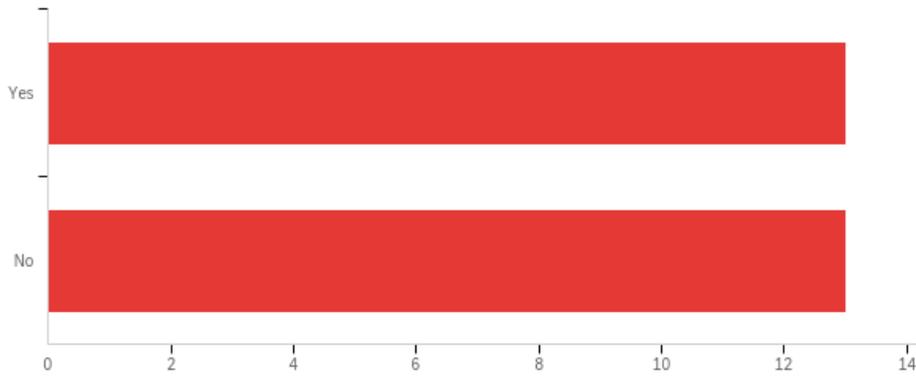
Figure 1. Half of teachers surveyed used OER in their classroom. The other half did not.
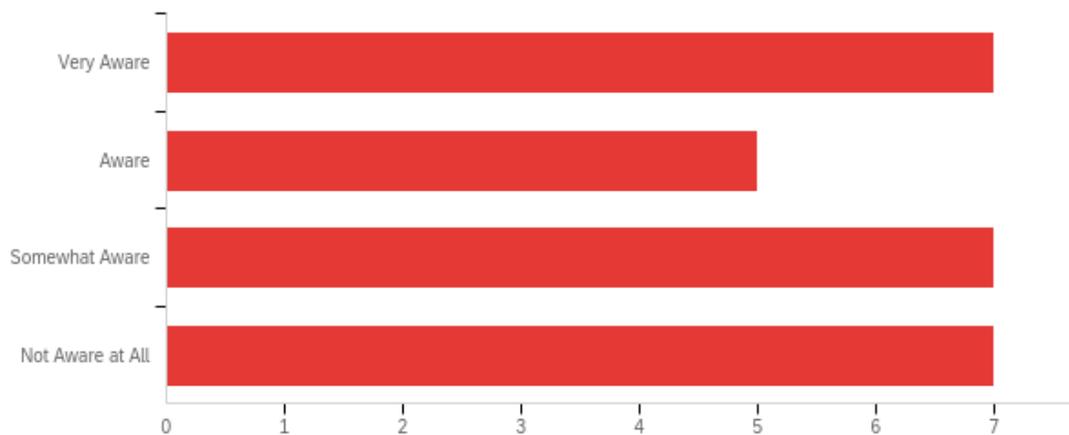
Figure 2. Teacher awareness of OER seems to vary, but the majority of teachers are at least somewhat
aware of OER.

Interestingly, while all of the teachers from the interviews were currently using

OER in their own classrooms, four out of the six teachers did not know the term "open

educational resources" and were unfamiliar with the open education movement. The

survey results differed from the interview results in this area. All of the teachers in the

survey who said they were not aware at all of OER were not using OER in their

classroom; however, all of the teachers who were not aware of OER during the interviews actually were using open sources, like EngageNY in their classrooms. The teachers who were using OER but were unaware of that term found these open sources through social media, word of mouth from other teachers, or simple Google searches.

One teacher who had not heard of the term open educational resources but was using them mentioned in her interview that she first started to use these sources because they were free. This teacher had previously taught at a school in the Mississippi Delta and said that she noticed a positive effect when using them. She commented:

> We were very limited on resources, so my kids, especially my journalism
>
> students, would use whatever was available for us…. If I could find some type of
>
> resource online that would help us, we used it, and we went on to competitions
>
> and won in creativity areas because they were creative and we used what we had
>
> and some of those open educational resources were available for them to do that.

Even though these teachers were not aware of the term open educational resources, they still saw some of the same benefits and drawbacks (some of which will be discussed below) of using these open sources that teachers who were more conscious of the open movement saw.

Other teachers who were using OER were more aware about the open movement. According to the survey, 83% of teachers who said they were very aware or aware of open educational resources were using them in their classroom. These teachers seemed to have heard about OER through some of the same means as the teachers who did not know about the terminology: word of mouth, online Google searches, and social media. However, the teachers who knew of open educational resources and the OER movement

seemed to be using them in more sophisticated ways. For example, on the survey, out of the teachers who had awareness of OER, 26% said they had adapted OER to fit their needs, 20% had downloaded an OER resource from a larger OER repository, 6% had added a resource to a repository, 6% had added comments to a repository regarding the quality of the resource or suggesting ways of using a resource, and 3% had created an open educational resource. This data is depicted in Figure 3. One high school teacher, who was very knowledgeable about open sources, even used these sources for her own learning as a way to review material and continue to learn from experts in the field that she teaches.
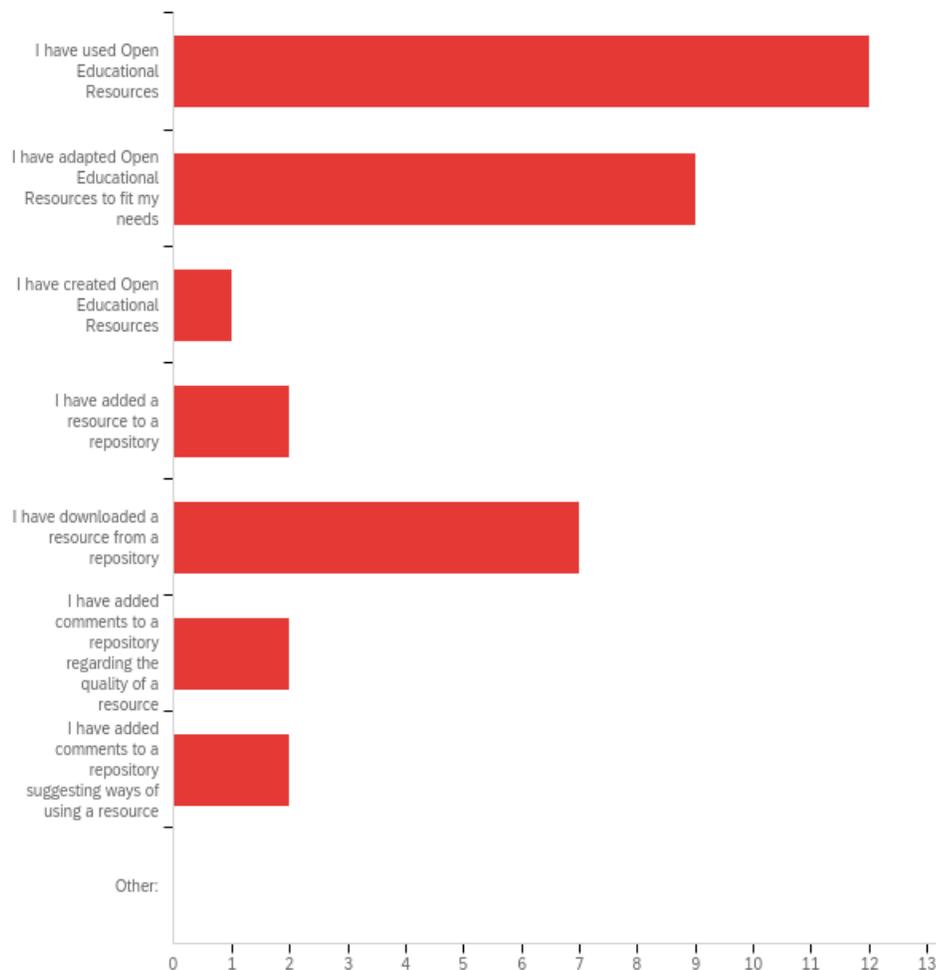

Figure 3. Teachers who were aware of OER seemed to be using them in more sophisticated ways like adapting them, creating their own OER, or adding comments to an open resource.

All of the teachers in the interviews said that they think most teachers at the district are relatively aware of some open educational resources, even if they don't label them OER. Additionally, some of the interviewees suggested that there should be professional development regarding the use of and incorporation of open educational resources into K-12 classrooms. As one teacher put it, not all teachers are "comfortable with it." Additionally, there seems to be an interest in learning more about OER, with 76% of respondents from the survey saying they would like to learn more about open educational resources. One interviewee also brought up the need to educate parents about what open educational resources are and how they can be beneficial to a student's learning. This teacher was using Khan Academy as a homework tool and said that she had to explain what it was and how to use it to parents during parent-teacher conferences.

Flexibility of Materials

Another prominent theme uncovered through the research was the flexibility that the resources provided for both the teachers and for the students. One teacher who was interviewed commented that she appreciated that these open resources are easily accessed and abundant, making for more diverse instruction. When asked about how OER has affected her teaching, another interviewed teacher said, "I think it has made me more creative. I like having all these options… maybe I'll see something that's presented differently than the way I would normally think." Another interview subject brought up the use of technology when discussing the flexibility that OER provides. He said, "It gives me a level of comfort to know that if one program goes down, like our primary

resource and I haven't planned on Digits [this teacher's primary online textbook] messing up… I can just go straight to another program and wing it. It is a lot easier for me to wing it doing that."

One interviewed teacher noticed that open resources allowed her to be more flexible with the pacing of her teaching.   She explained that at the start of the semester the license for a design program she wanted her students to use had not begun. She wanted to start teaching students how to use this design program, so she found an openly licensed video on the internet of how to use the program, created a reflection worksheet to go along with it, and showed it to her students.   By incorporating an open resource into her classroom, this teacher was able to present her material in an order that worked for her and her students.

Another aspect of flexibility that OER seems to provide is the ability to adapt the materials. As mentioned in the section, "Levels of Teacher Awareness," 26% of teachers who took the survey said they have adapted open resources to fit the needs of their students. When asked why they decided to incorporate OER into their classroom, teachers chose flexibility as the number three reason. This data, along with the other reasons, is depicted in Figure 4.
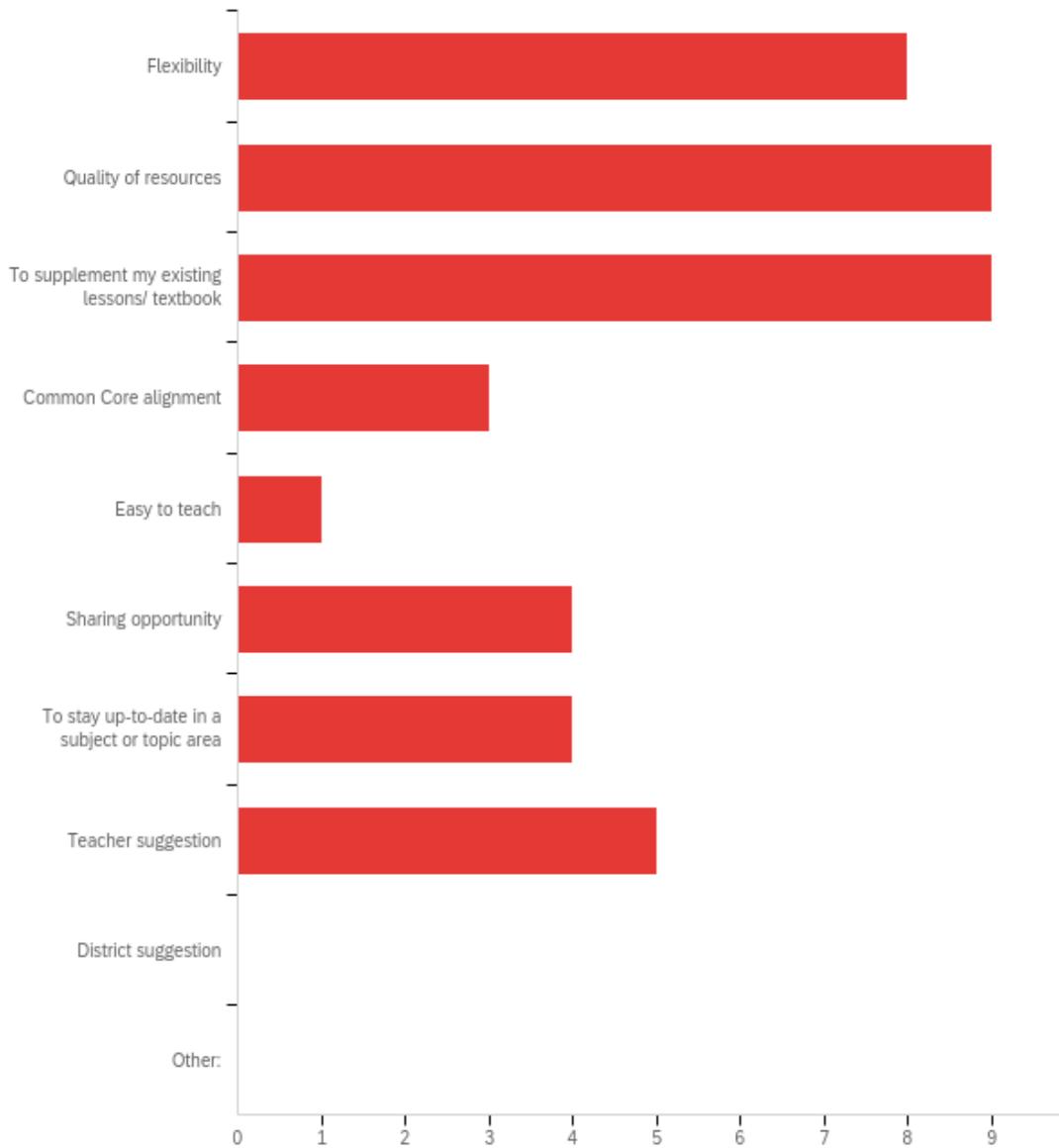
Figure 4. Teachers who were using OER in their classroom were doing so for a variety of reasons. Teachers could pick as many responses as they wanted.

Additionally, when asked about how the use of OER has affected their teaching, three of the top five answers focused on the flexibility of open materials. These responses were: I adapt resources to fit my student's needs; I use a broader range of teaching and learning methods; and I have broadened my coverage of the curriculum. This data is depicted in Figure 5.
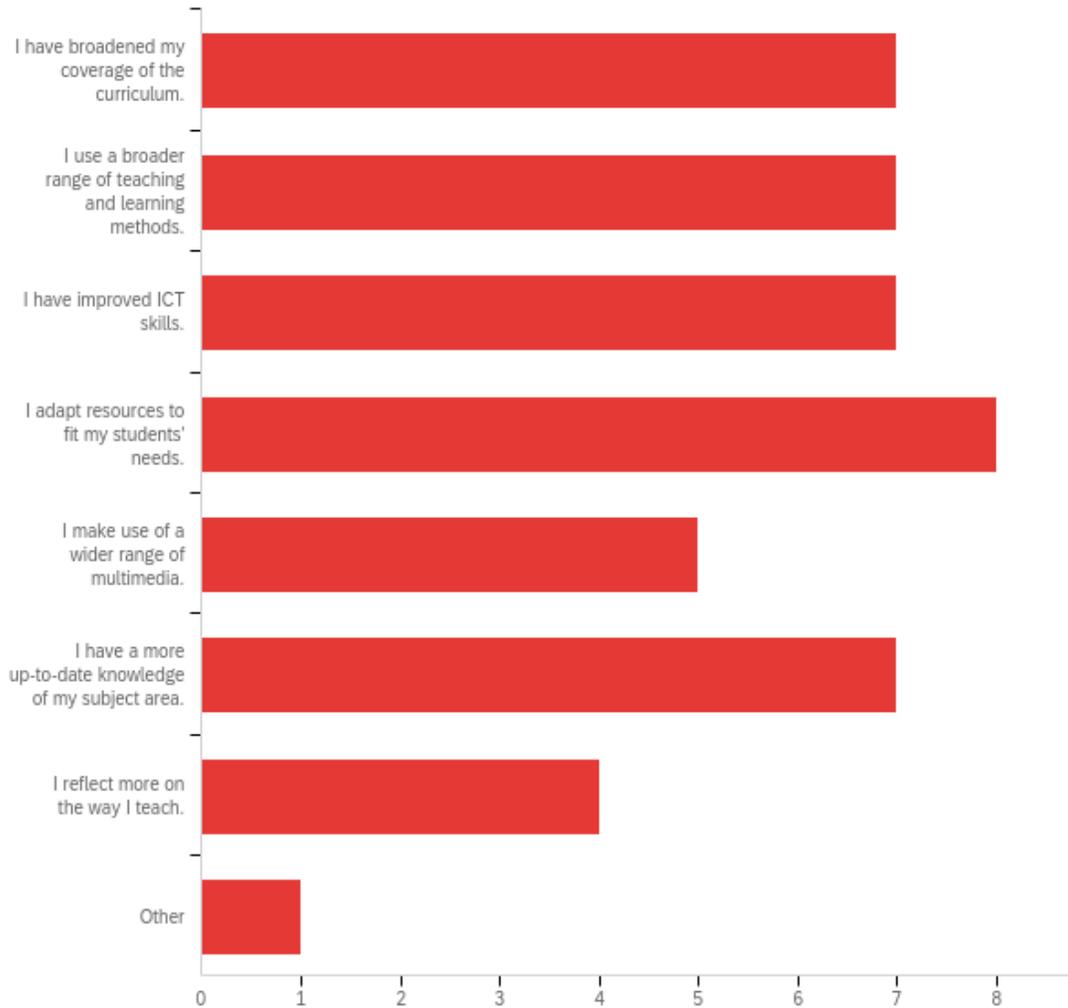
Figure 5. Teachers were asked to choose the ways in which OER has affected their teaching.

Another question from the survey asked teachers how likely they were to modify OER resources. Twenty-seven percent said they were extremely likely, 45% said they were somewhat likely, 18% said they were neither likely nor unlikely, and 9% said that were somewhat unlikely. Because the question did not demand an answer for why they are unlikely to modify an OER material, it is difficult to ascertain why they would not be interested in adapting or modifying the source.

Some teachers also perceive the materials as offering greater flexibility for their students. Some teachers that were interviewed used Khan Academy, which automatically paces its instruction based on students' academic needs. One teacher saw this as a benefit for students, as students get to "work on their level." Another teacher liked that students were not solely relying on the textbook, saying, "We don't want them to rely on this book as their end all be all." During the observation, the teacher explained that students were able to work more flexibly using some of these open resources. She said that some days she allows students to choose their activity for the day using several different open source materials as options.

Supplemental Use to Textbook

A third theme extrapolated from the data was the use of OER solely as supplemental material to an existing textbook. All of the teachers who were interviewed or participated in the survey used OER as a supplemental tool. This was not surprising because of the Mississippi education law that directs schools to only use OER as supplemental material and still requires schools to buy traditional textbooks (also discussed in the Literature Review).   However, some classes at this school district are not required to use a textbook. For instance, the class that I observed was a computer programming course, and the students were not using a state-bought textbook.   While this teacher did utilize several websites and a curriculum that were paid for by the school district, she incorporated some open source curriculum, too.   She used one of the courses available on Code.org, an openly sourced website, that was designed for her grade level to help teach her course. There may be more teachers at the District, like this one, who

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are not required to use a textbook and who are integrating OER as a substitute into their courses; however, she was the only research participant who was using OER in this way.

The manner in which teachers were using OER as supplemental material varied. Teachers from the interviews and observation used open sources as homework (like the teachers who used Khan Academy). Some teachers integrated OER into lessons during class-time. Some research participants used open sources to model concepts to students. Some used openly sourced systems, like Kahoot, to create assessments. Other research participants used OER to build their curriculum. When asked on the survey what types of OER they have used, 14.29% responded videos, 12.99% responded images, 11.69% responded worksheets, 11.69% responded lesson plans, and 10.39% responded interactive games.

The interviews and observations also covered the topic of traditional textbooks and teachers' perceptions of traditional resources. When asked on the survey about their satisfaction with their current textbook, 11% of respondents rated their experience as extremely satisfied, 22% said they were satisfied, 56% said they were neither satisfied nor unsatisfied, and 11% said they were somewhat unsatisfied. This data is represented in Figure 6.
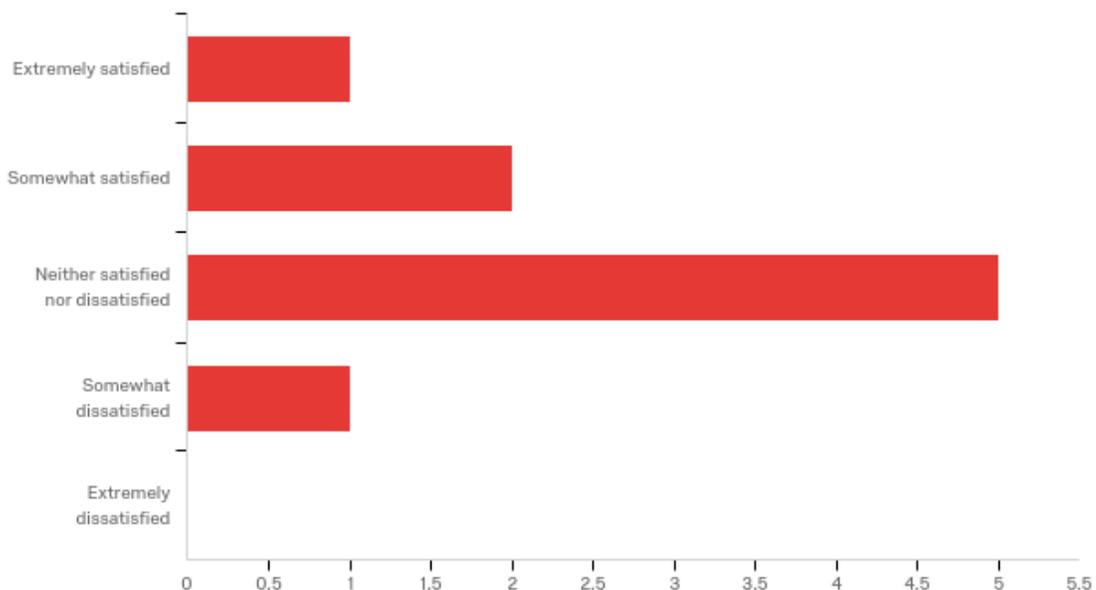
Figure 6. Teachers rated their satisfaction with their current traditional textbooks.

Teachers were also asked about their levels of concern over the price of traditional textbooks. The results of that question are as follows: 4.35% responded they were very concerned, 39.13% responded they were concerned, 17.39% responded they were somewhat concerned, 26.09% responded they were unconcerned, and 13.04% said they were neither concerned nor unconcerned. This data is presented in Figure 7. Teachers in the interview also noted their concern about school funds and OER. One teacher said, "The fact that the school has very limited funds and we can only get so many things paid for is a benefit of OER. We can also go to the Foundation [Oxford School District Foundation] or our PTO for help if we have stuff that is needed, but even that is very limited."
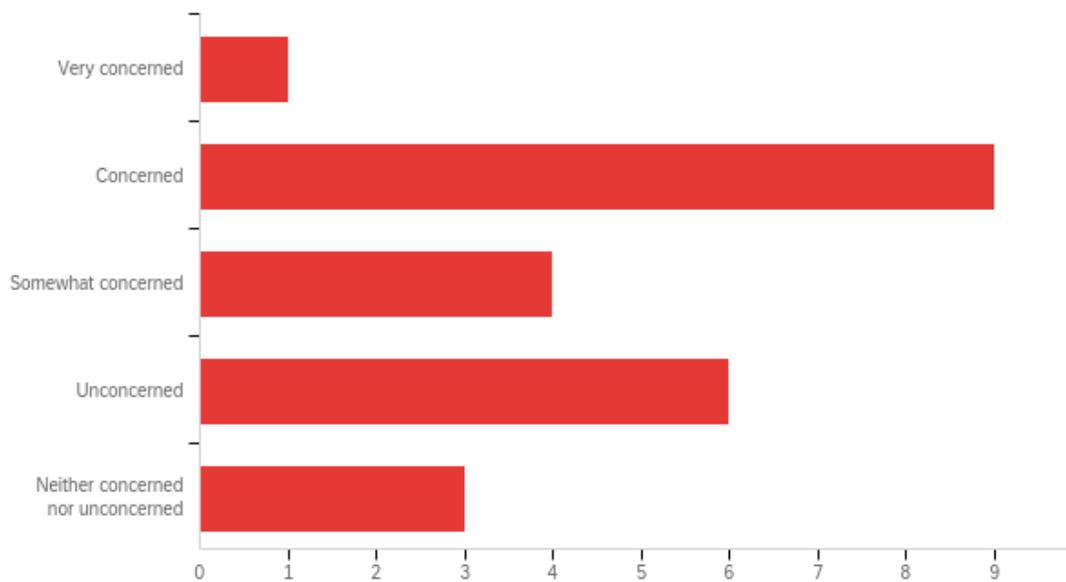
Figure 7. Teachers answered how concerned they were about the price of traditional textbooks.

Teachers who took part in the interviews generally liked or had little feeling towards the textbooks and traditional materials that were provided for their class. One

teacher thought that the book he used provided a good order for presenting the material and served as a good outline for him. When talking about the traditional textbook and accompanying PowerPoint that he uses in his class he said, "So even though it's our textbook, I'm going to throw the PowerPoint up there, and I'm probably going to pause it about halfway through the first page and then explain it in my words [or] 6th grade words, and I'm going to have them take notes based off what I'm saying. It's just another thing to help me." His comment reveals he is using the traditional textbook and school-purchased resources, but those materials are not the only tools he uses to explain the concepts to his students.

Additionally, this teacher told me about another resource that he uses to which the kids really respond well. He was able to buy this material after receiving a grant. When discussing the resource he said, "It's written much more kid-friendly, so at the very beginning of the year, they're told if you're not understanding something from the board or what I'm doing, look at that [the resource.] We really try to fill them with as many different things [resources] as possible right now." While this source is not open, this was just one of numerous examples of teachers looking outside of the traditional textbook and resources bought by the school to help students in the classroom.

Student Engagement

Another theme that emerged from the data was the impact of OER on student engagement. When I observed the class that was using OER, the students were engaged with the material. During the classroom observation, students solved critical thinking problems using an openly licensed computer-programming curriculum. I wrote these

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notes: "Students are engaged and excited about what they are learning during this lesson. The lesson encourages students to work together and gives them ample opportunity to use different modes of thinking." Just because these students were engaged with the material does not mean that all OER materials are necessarily engaging or that only OER materials can be engaging. In fact, there could be a number of copyrighted materials that make for equally engaging lessons. What the observation did suggest, however, was that there are OER materials out there that will sustain high levels of student engagement and that quality, openly-licensed resources do not hinder student engagement.

Survey results also included information about student engagement. Several teachers responded to the question about satisfaction with their experience using OER by bringing in student engagement. One teacher said, "Yes. They help me to come up with ways to engage students that I may not have thought of." Another teacher answered by saying, "I have been satisfied. The resources are generally appealing to the students I teach." Another teacher commented on how her students are able to work together easily using these resources. She said, "My students can share their work and work on other students' designs." Additionally, in the interviews, some teachers said that the number of OER materials available adds variety to their lessons which helps maintain student interest and engagement. As one teacher put it, all of the OER "keeps students guessing;" that is, OER helps alleviate boredom for students and repetition in lessons.

Technology and OER Connection

The last theme that emerged from the data was the connection between the use of OER and technology. As stated in Chapter 3, this school has a one-to-one initiative with

technology. All of the OER resources that were discussed during the interviews were accessed by the student via a classroom or personal computer. One teacher thought that students accessing open resources through technology was beneficial. She commented, "Us having the computers makes it easier because kids are able to interact with the material more and more, and it keeps them busy." Another teacher from an interview talked about the difference between this school that has lots of technology for the students and a previous school that she worked for that did not. She noted, "Coming from a different school that did not have all of these computers at our disposal, I think that having these resources has increased my ability to be more flexible, and I feel like it helped the kids, too, with how they learn and how they interact and just made the class run better. It was better having those resources than not."

Additionally, like most educators using OER, some teachers interviewed noticed that the spread of OER would be most effective with adequate access to technology. As one teacher put it, "Each student in the state would need access to the proper devices and high-speed internet services to implement the use of OER." Another teacher saw OER in K-12 as part of a larger shift towards open learning and the internet. He explained, "Free works. Plus, it is the way of the world. We use our phones to search anything and everything (without regards to copyright laws)."

Perceived Barriers to Adoption

In the survey responses, throughout the interviews, and during the observation, several teachers brought up current problems that they have with OER and future problems that they think might appear if there were a larger adoption of OER or if OER

replaced textbooks completely. Two of the primary concerns teachers expressed

regarding their current use of OER is finding the time to locate sufficient resources and

the quality of available resources. One teacher put OER's effect on her teaching like this:

"It has both enriched my teaching and complicated the process due to the sheer volume of

resources available and the issue with establishing quality and reliability of information."

The teacher from the observation explained that the work she does in finding enough

resources for her class, because they do not have a textbook, is time-consuming and

sometimes difficult to navigate because of the abundance of resources available. The

results from the survey substantiated the comments from the interviews and observation.

The top three responses for the challenges in using OER for teachers were (in order): not

having enough time to look for suitable resources; not having enough time or

opportunities to experiment; and finding resources of sufficiently high quality. This data

is displayed in Figure 8.
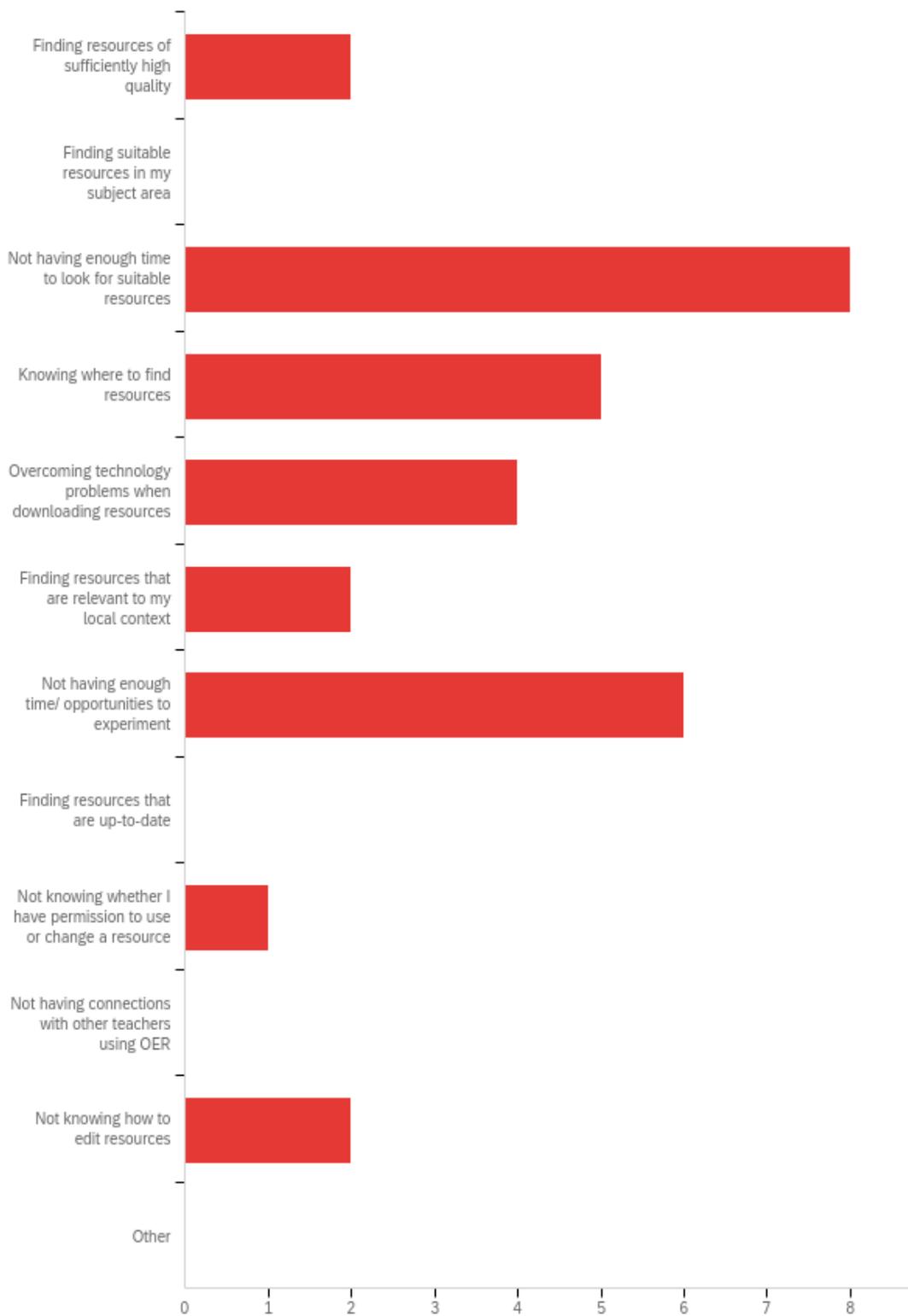
Figure 8. Teachers responded to a question about the challenges they find when using OER.

Another issue that teachers found when using open -sourced material was making sure that they aligned with state standards, objectives, and tests. Although some states

have curated banks to store materials that specifically align to state requirements, Mississippi does not, and many teachers mentioned this as a problem. For example, one teacher said, "It is also a challenge to coordinate the materials with both the state history objectives and AP objectives established by the College Board. This is an extremely time-consuming task that requires researching a vast amount of material, working through the lesson, and then modifying the lesson for my classes."

Some teachers were also uncomfortable with the idea of replacing textbooks completely with OER. One teacher said she liked having the textbook to "rely on." Another teacher echoed that feeling by saying, "I need that fallback of 'this is what follows our curriculum,' but, you know, also the leeway of going, 'This is a terrible way to present this topic, let me see if I can find something free that can explain it better.'" Another teacher commented that faculty might see this as an overreach by the state: "Yeah, I really don't want to be told by the state this is the one curriculum you have to use."

CHAPTER 5: Final Conclusions

Limitations to Research

There are several limitations to this research that must be acknowledged. The first limitation is that only one school district was able to participate in this research, thus limiting my sample size. As I was not able to involve other school districts, I could not gauge teacher perceptions of OER across different communities and socioeconomic perspectives. Additionally, only a small percentage of teachers from this school district took part in the research. Interviewing, surveying, and observing more teachers would have provided more richness and validity to the results. Another limitation was the length of my interviews and observations. All of the interviews lasted less than fifteen minutes.   The observation took place only one time for one 50-minute class period. More face-to-face time for the interviews and observations would have given me more detail on how teachers felt about and used OER in the classroom. Another limitation was my lack of experience as a researcher. This is one of the first research projects I have undertaken, so I have limited knowledge about effective research techniques and procedures.

Interpretation of the Results

Several interpretations can be drawn from the findings of this study. First, the term open educational resources does not seem to be widely known by teachers in the district examined, but several teachers were still using open resources without being

aware of that term. The implication to that finding is that teachers find these resources

valuable even if they do not recognize that they are working with open sources.

A second implication is that teachers in Mississippi do not seem to view OER as a

replacement for a standard textbook but rather as a supplement to existing textbooks and

curriculum.   This could be due to a generally ambivalent attitude from teachers about

the textbooks purchased by the District. Teachers seem to be using the text as much as

they can and then looking for OER to fill in gaps in the book, engage students in different

ways from the standard text, or update outdated information in the textbooks.

A third implication is that teachers are motivated to find resources outside of a

conventional textbook to teach as effectively as they can. This implication took a lot of

different forms: some teachers used OER to find resources that could help differentiate

instruction to students, other teachers found OER to review material for their own

professional development in their subject, and others were just looking for something that

would be engaging for their students.   Effective teachers are always looking for ways to

improve instruction, and it seems OER are a way to help facilitate that improvement

without cost to the teacher or the District.

Even though cost was not one of the primary motivating factors mentioned by

teachers using OER, a fourth implication of the study was the cost saving benefits of

OER. Although teachers in the interviews, observations, and survey did not emphasis the

free aspect of OER, underlying many of their comments was the assumption that they

were using materials because they were free.

A final implication is that OER seemed to be intimately connected to technology

initiatives. Teachers accessed these resources primarily through computers that were

widely used in this District by both teachers and students. Without the one-to-one technology initiative in this District, OER may not have gained much of a foothold because so many of the materials are available only online.

Actions for Mississippi K-12 Schools

Given the implications drawn from this research, the Mississippi Department of Education and/or Mississippi school districts may want to consider the following actions involving OER. The first action is that teachers need more professional development or information about what OER is and how to use it. This would include information about licensing, available repositories of OER, and available curated curriculum. Included in that professional development could also be information about how OER can help teachers and students by providing more flexibility, adaptability, and engagement.

Additionally, textbook acquisition personnel may want to reframe their consideration of which textbooks to purchase. These personnel may want to consider how teachers in their District are currently using OER as well as the available open resources that teachers are not using before selecting a text. Although textbooks will not be totally replaced in the near future in Mississippi by OER, districts could accrue some cost saving benefits by thinking about how OER is used in conjunction with a textbook. Additionally, the breadth of material or level of the textbook may be able to be adjusted because of the open educational resources that are available.

A third action districts may want to consider is finding ways to fund teachers who are substantively improving the materials in their classrooms through the use of OER. Teachers who are actively working to improve their classroom instruction through the use

of OER could receive grants to research and curate materials for their students. Districts could sponsor summer grants or pursue grants from foundations that support education.

A last recommendation for action would be a curated bank of OER for Mississippi K-12 schools from the state. Several other states already have this available for teachers. There are different ways for this to be done, but a central organizing body would have to be the leader in this area. The Mississippi Department of Education could hire teachers to work on creating this bank of resources in a specified time period, following the Engage NY model. Alternatively, the schools of education from the leading higher education institutions in the state (the University of Mississippi, Mississippi State, The University of Southern Mississippi) could form a cooperative venture to build this bank and make it available to Mississippi teachers.

Implications for Future Research

More research needs to be done in the area of OER use in K-12 schools throughout the nation, and, in particular, in Mississippi. Although a significant amount of research has been directed toward higher education, research in K-12 is much sparser. Another area that needs further research is how teachers perceive OER in lower-performing, less well-funded schools in Mississippi. This study only examined one high-performing school, and Mississippi schools vary widely in terms of both resources and performance. A study specifically aimed at a low-performing, low-resourced school would provide a fuller understanding of how OER is currently operating in Mississippi. Another study could investigate K-12 student outcomes when using open educational resources versus using traditional textbook options in Mississippi. Student performance

is not something this study examined but would be key to evaluating the significance of OER in K-12 classrooms. Finally, researchers could look at how non-public schools or home-schoolers are using open resources and what the results have been for them. This would add to the larger understanding of OER and how it affects children's learning.

Conclusion

Open educational resources in K-12 learning environments have been largely unstudied but hold great potential for teachers and students. When used effectively, open resources have the potential to give teachers more flexibility, lower textbook costs for schools, and create new learning opportunities for students. However, much more work has to be done for K-12 schools to be able to reach this vision for OER use in the classroom. Teacher perceptions are vital when considering if OER is worth using in a K-12 classroom. Helping teachers understand how open resources work, how they can adapt the growing body of open educational resources, and how they can add to the growing repository of OER is vital to successful implementation of open educational resources.

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Appendix A Interview Questions

1. How did you first hear about OER?

2. What types of OER do you use in the classroom and how do you use them?

3. How did you choose OER and why did you choose the OER you are using?

4. How has the use of OER affected your teaching?

5. How has the use of OER affected student outcomes?

6. What have been some of the benefits of using OER and what have been some of the drawbacks?

7. Do you think the District should be using more OER? How do you the District could spread awareness of OER?

8. Do you think more schools in Mississippi should be using OER? How do you think the State could implement OER?

9. Do you see barriers in OER implementation in Mississippi?

Appendix B Survey

Q1. What is your gender?

- o   Male

- o   Female

- o   Other

Q2. How long have you been teaching?

- o   0-5 years

- o   6-10 years

- o   11-15 years

- o   16-20 years

- o   20-30 years

- o   31+ years

Q3. What grade/grades are you currently teaching? (Click all that apply.)

- o   Pre-Kindergarten

- o   Kindergarten

- o   1st

- o   2nd

- o   3rd

- o   4th

- o   5th

- o   6th

- o   7th

- o   8th

- 9th

- 10th

- 11th

- 12th

Q4. What subject/ subjects do you teach?

- ELA

- Math

- History / Social Studies

- Science

- Art

- Music

- Special Education

- Physical Education

- Pre-K - 2

- Computing and informational science

- Health science

- Geography

- Other

Q5. What is your highest degree attained?

- Bachelor's

- Master's

- Specialist's

- Doctoral

Q6. What is your age?

- o 20-25

- o 26-30

- o 31-40

- o 41-50

- o 51-60

- o 60+

Q7. Open Educational Resources (OER) are defined as "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others." Unlike traditionally copyrighted material, these resources are available for "open" use, which means users can edit, modify, customize, and share them.

How aware are you of Open Educational Resources (OER)?

- o Very Aware

- o Aware

- o Somewhat Aware

- o Not Aware at All

Q8. Do you use OER in your classroom?

- o Yes

- o No

(If Yes, Continue and stop at Question 18. If No, go to Question 19)

Q9. In which of these ways have you used or created Open Educational Resources?

(Click all that apply).

- o I have used Open Educational Resources

- o I have adapted Open Educational Resources to fit my needs

- o I have created Open Educational Resources

- o I have added a resource to a repository

- o I have downloaded a resource from a repository

- o I have added comments to a repository regarding the quality of a resource

- o I have added comments to a repository suggesting ways of using a resource

- o Other:

Q10. What's the source of your OER materials?

- o CK-12

- o Merlot

- o OpenLearn

- o Khan Academy

- o Jorum

- o Curriki

- o Connexions

- o MIT Open Courseware

- o EngageNY

- o Creative Commons

- o Taylor Foundation

- o TED Talks/TED-Ed

- o YouTube

- o Wikibooks

- o   Other:

Q11. Which of the following types of open educational resources have you used for teaching/ training? (Click all that apply).

- o   Open textbooks

- o   Open e-books

- o   Whole course

- o   Elements of a course (e.g. a module/ unit)

- o   Videos

- o   Audio podcasts

- o   Images

- o   Infographics

- o   Interactive games

- o   Lesson plans

- o   Quizzes

- o   Worksheets

- o   Other:

Q12. How did you learn about OER?

_____

Q13. Why did you choose to use OER in your classroom? (Click all that apply).

- o   Flexibility

- o   Quality of resources

- o   To supplement my existing lessons/ textbook

- o   Common Core alignment

- o Easy to teach

- o Sharing opportunity

- o To stay up-to-date in a subject or topic area

- o Teacher suggestion

- o District suggestion

- o Other:

Q14. Have you been satisfied with your experience using OER? Please explain.

_____

Q15. To what extent do you agree with the following statements about the impact on your

teaching practice of using Open Educational Resources? (Click all that apply).

- o I have broadened my coverage of the curriculum.

- o I use a broader range of teaching and learning methods.

- o I have improved ICT skills.

- o I adapt resources to fit my students' needs.

- o I make use of a wider range of multimedia.

- o I have a more up-to-date knowledge of my subject area.

- o I reflect more on the way I teach.

- o Other

Q16. How does your use of OER impact student performance? (Click all that apply).

- o Increases learners' participation in class discussions

- o Increases learners' interest in the subjects taught

- o Increases learners' satisfaction with the learning experience

- o Leads to improved student grades

- o Builds learners' confidence

- o Develops learners' independence and self-reliance

- o Increases learners' engagement with lesson content

- o Increases learners' experimentation with new ways of learning

- o Increases collaboration and/or peer-support among learners

- o Increases learners' enthusiasm for future study

- o Leads to learners becoming interested in a wider range of subjects than before

- o Other

Q17. What challenges do you find in using OER? (Click all that apply.)

- o Finding resources of sufficiently high quality

- o Finding suitable resources in my subject area

- o Not having enough time to look for suitable resources

- o Knowing where to find resources

- o Overcoming technology problems when downloading resources

- o Finding resources that are relevant to my local context

- o Not having enough time/ opportunities to experiment

- o Finding resources that are up-to-date

- o Not knowing whether I have permission to use or change a resource

- o Not having connections with other teachers using OER

- o Not knowing how to edit resources

- o Other

Q18. How likely are you to modify OER materials you use in class?

- o Extremely likely

o   Somewhat likely

o   Neither likely nor unlikely

o   Somewhat unlikely

o   Extremely unlikely

Q19. Why do you not use OER in your classroom? (Click all that apply.)

o   Do not know enough about it

o   Not used by other teachers I know

o   Not relevant to my teaching

o   Not enough time

o   Do not know if I have permission to use or change

o   Not enough resources for my subject

o   Too difficult to integrate into technology I use

o   Not high-quality

o   Too hard to find what I need

o   Too difficult to use

o   Other:

Q20. Some states have curated resource banks of OER materials. If Mississippi had a

repository of OER materials specifically for Mississippi teachers, how likely would you

be to use it?

o   Extremely likely

o   Somewhat likely

o   Neither likely nor unlikely

o   Somewhat unlikely

- Extremely unlikely

- Would have to learn more about OER

Q21. Would you like to learn more about Open Educational Resources (OER)?

- Yes

- Maybe

- No

Q22. How satisfied are you with the current textbook used in your classroom?

- Extremely satisfied

- Somewhat satisfied

- Neither satisfied nor dissatisfied

- Somewhat dissatisfied

- Extremely dissatisfied

- Do not use a textbook

Q23. One of the primary reasons for OER adoption in school districts is the cost saving benefits of eliminating traditional textbooks. How concerned are you about the cost of textbooks in your district?

- Very concerned

- Concerned

- Somewhat concerned

- Unconcerned

- Neither concerned nor unconcerned

Appendix C Survey Data

Q1. What is your gender?	Male: 7.69% Female: 92.31%
Q2. How long have you been teaching?	0-5 years: 15.38% 6-10 years: 19.23% 11-15 years: 15.38% 16-20 years: 23.08% 20-30 years: 23.08% 31+ years: 3.85%
Q3. What grade/grades are you currently teaching? (Click all that apply.)	Kindergarten: 2.04% 1st: 2.04% 2nd: 8.16% 3rd: 2.04% 4th: 2.04% 5th: 22.45% 6th: 20.41%% 7th: 6.12% 8th: 4.08% 9th: 8.16% 10th: 6.12% 11th: 8.16% 12th: 8.16%
Q4. What subject/ subjects do you teach?	ELA: 9.09% Math: 27.27% History/ Social Studies: 6.06% Science: 9.09% Art: 6.06% Music: 6.06% Special Education: 3.03% Physical Education: 9.09% Pre-K-2: 3.03% Computing and informational science: 3.03%
Q5. What is your highest degree attained?	Bachelor's: 46.15% Masters: 38.46% Specialist's: 11.54% Doctoral: 3.85%
Q6. What is your age?	20-45: 7.69% 26-30: 15.38% 31-40: 34.62% 41-50: 15.38% 51-60: 26.92%
Q7. How aware are you of Open Educational Resources (OER)?	Very Aware: 26.92% Aware: 19.23% Somewhat Aware: 26.92%

	Not Aware at All: 26.92%
Q8. Do you use OER in your classroom?	Yes: 50% No: 50%
Q9. In which of these ways have you used or created Open Educational Resources? (Click all that apply).	I have used OER: 34.29% I have adapted OER to fit my needs: 25.71% I have created OER: 2.86% I have added a resource to a repository: 5.71% I have downloaded a resource from a repository: 20% I have added comments to a repository regarding the quality of a resource: 5.71% I have added comments to a repository suggesting ways of using a resource: 5.71%
Q10. What's the source of your OER materials?	Khan Academy: 25% Connexions: 8.33% EngageNY: 16.67% Youtube: 8.33% Other: 41.67%
Q11. Which of the following types of open educational resources have you used for teaching/ training? (Click all that apply).	Open textbooks: 3.90% Open e-books: 6.49% Whole course: 1.30% Elements of a course: 7.79% Videos: 14.29% Audio podcasts: 2.60% Images: 12.99% Infographics: 6.49% Interactive games: 10.39% Lesson plans: 11.69% Quizzes: 9.09% Worksheets: 11.69% Other: 1.30%
Q12. How did you learn about OER?	• "other teachers, internet searches" • "research" • "online/search engines" • "PLN on Twitter, word of mouth from real-life colleagues, exploring online" • "I never really knew the acronym but have always looked for other resources." • "word of mouth" • "google"

	• "I don't recall having any formal training with OER. It was more trial and experiment over the years." • "google" • "When finding technologies for my students, I need it to be free and usable by students, so open source is best for me."
Q13. Why did you choose to use OER in your classroom? (Click all that apply).	Flexibility: 18.60% Quality of resources: 20.93% To supplement my exiting lessons/ textbook: 20.93% Common core alignment: 6.98% Easy to teach: 2.33% Sharing opportunity: 9.30% To stay up-to-date in a subject or topic area: 9.30% Teacher suggestion: 11.63%
Q14. Have you been satisfied with your experience using OER? Please explain.	• "Yes." • "Yes. I always find helpful resources. • "Yes. There are a multitude of resources that can be found online." • "Yes. Some of the best resources out there are the ones created freely and shared by other collaborators." • "I like finding alternate activities and ways to present concepts to my students." • "I have been satisfied. The resources are generally appealing to the students I teach." • "Yes. They help me to come up with ways to engage students that I may not have thought of." • Yes. I like that these resources are current and up-to-date. However, I must be careful these resources closely align with our district and state goals and standards." • "Yes. They have supplemented my textbook (which I do not use often) well."

	• Yes. My students can share their work and work on other student's designs."
Q15. To what extent do you agree with the following statements about the impact on your teaching practice of using Open Educational Resources? (Click all that apply).	I have broadened my coverage of the curriculum: 15.22% I use a broader range of teaching and learning methods: 15.22% I have improved ICT skills: 15.22% I adapt resources to fit my students' needs: 17.39% I make use of a wider range of multimedia: 10.87% I have a more up-to-date knowledge of my subject area: 15.22% I reflect more on the way I teach: 8.70%
Q16. How does your use of OER impact student performance? (Click all that apply).	Top three answers: Increases learners' interest in the subjects taught Builds learners' confidence Develops learners' independence and self-reliance
Q17. What challenges do you find in using OER? (Click all that apply.)	Top three answers: Not having enough time to look for suitable resources Not having enough time/ opportunities to experiment Knowing where to find resources
Q18. How likely are you to modify OER materials you use in class?	Extremely likely: 27.27% Somewhat likely: 45.45% Neither likely nor unlikely: 18.18% Somewhat unlikely: 9.09%
Q19. Why do you not use OER in your classroom? (Click all that apply.)	Top four answers: Do not know enough about it. Do not know if I have permission to use or change. Not relevant to my teaching. Not enough time.
Q20. Some states have curated resource banks of OER materials. If Mississippi had a repository of OER materials specifically for Mississippi teachers, how likely would you be to use it?	Extremely likely: 40.91% Somewhat likely: 36.36% Neither likely nor unlikely: 9.09% Somewhat unlikely: 4.55% Would have to learn more about OER: 9.09%
Q21. Would you like to learn more about Open Educational Resources (OER)?	Yes: 65.22% Maybe: 30.43% No: 4.35%

Q22. How satisfied are you with the current textbook used in your classroom?	Extremely satisfied: 11.11% Somewhat satisfied: 22.22% Neither satisfied nor dissatisfied: 55.56% Somewhat dissatisfied: 11.11%
Q23. One of the primary reasons for OER adoption in school districts is the cost saving benefits of eliminating traditional textbooks. How concerned are you about the cost of textbooks in your district?	Very concerned: 8.33% Concerned: 37.50% Somewhat concerned: 16.67% Unconcerned: 25% Neither concerned nor unconcerned: 12.50%