*Journal of Online Learning Research* (2021) **7**(3), 269-291

# School Leaders' and Teachers' Preparedness for the Online K – 12 Setting: Student Learning and Engagement, Curriculum and Instruction, and Data-Driven Decision-Making

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Nearly half of new teachers leave the profession within five years of employment, and most would not recommend teaching as a profession. A shortage of highly effective teachers continues in public schools across the nation; hence, meaningful professional development needs to be implemented to adequately prepare and retain teachers for the classroom, and this need is further compounded in the online setting. The goal of this study was to ascertain school leaders' and teachers' perceptions of preparedness for an online K – 12 school

by examining perceptions of preparedness in three categories: student learning and engagement, curriculum and instruction, and data-driven decision-making. Findings from this study indicated that school leaders and teachers did not perceive teachers as being adequately prepared for the K – 12 online setting. Future research should aim to identify the implementation of purposeful, collaborative, and sustainable professional development based on needs and identified trends in online K – 12 schools to ensure teachers are prepared for the online setting.

*Keywords: online education, professional development, teacher preparation, teacher retention, virtual learning*

## INTRODUCTION

It is vital to assess the number of teachers that return to the profession, their district, and their school annually. In a state address, Woods et al. (2019) stated that 44% of Georgia's new teachers leave the profession within five years of employment, and only 2.7% of the 53,000 teachers surveyed recommend teaching as a profession to their students. Elements such as school climate, school funding, and teacher support continue to plague traditional face-to-face classrooms (Woods et al., 2019), and these elements are reflected in online schools as well. Quality teaching is the most influential predictor of student achievement and should be the focus of our schools (Young, 2018), yet with the high rate of departure, there is a constant need for new teacher development. One in four new teachers nationally will leave teaching in their first five years with higher turnover in urban areas, schools that serve minorities, and under-resourced schools (Ronfeldt & McQueen 2017). Recent research noted that current trends denote that relatively high rates of teacher attrition is a primary contributor to teacher shortages nationwide, resulting in almost 90% of annual teacher demand (Sutcher et al., 2019).

In addition to the challenges with teacher attrition, there is also a need to assess teacher job satisfaction and the overall impact that professional development can have on increasing teacher retention in online education (Velasquez et al., 2013). To retain online teachers, identifying ways that school leaders can provide teachers with supportive and high-quality professional development remains vital. McBrayer and colleagues (2018) defined collaborative, purposeful, and sustainable professional development as "an ongoing process in which educators learn and work for the collective

good of the district and schools to identify evidence-based practices for all school personnel to achieve better results for the students they serve" (p. 36). Moreover, this professional development must include providing common planning times, ensuring strong communication, and promoting a sense of community via a well-structured system of support (Borup & Stevens, 2016).

There is a need for professional development that is intentionally crafted for online learning; therefore, a gap in the literature has been identified warranting further research. In turn, the following research questions were the focus of this study: To what degree are online K – 12 teachers prepared to advance student learning and engagement, implement curriculum and instruction, and engage in data-driven decision-making; and do perceptions of online K – 12 teacher preparedness differ between school leaders and teachers in an online K – 12 school based on student learning and engagement, curriculum and instruction, and data-driven decision-making?

## REVIEW OF THE LITERATURE

### Student Learning and Engagement

The movement of the Georgia Professional Standards Commission (GaPSC) toward ensuring all educators have a highly qualified teacher status stems from several laws that have been implemented to ensure teachers in the classroom are prepared to adequately teach and engage students based on evidence-based practices (GaPSC, 2021). The investment from policymakers, districts, and schools in increasing the quality of teachers and the teaching profession has proven to be the basis of increasing student learning and engagement and this ultimately aids in closing the student achievement gap (Fong-Yee & Normore, 2013).

Implications of differentiated instruction in the traditional classroom has led to increased and focused learning and improved problem-solving skills for students (Lai et al., 2020). Individualized and specific teacher feedback causes students to experience a sense of satisfaction from teacher support, so that the student will continue to be engaged in the learning process (Çakiroğlu & Erdemir 2019; Larmuseau et al., 2018). Ebaid (2020) noted that relationships are fostered when schools focus on decreasing teacher turnover, building a strong school climate, and ensuring the support of all teachers in the school as aligned to the goals and needs of both school leaders and students.

Not only does academic preparation play a role in educators' success, but the ongoing need for professional development through engaging instructional practices does as well (Goe & Stickler, 2008). Research has demonstrated that professional development focusing on specific and

improved teaching practices increases overall student learning and engagement (Desimone et al., 2002); furthermore, it showed a link between increased teacher knowledge and significant change in classroom practices in that content pedagogy, collaboration, and classroom management yield teacher success, and subsequently, those classroom practices produce better teaching. Parise and Spillane (2010) also noted that professional development to ensure student learning and engagement is crucial to morale, retention, and support of teachers as it provides a collaborative effort.

### Curriculum and Instruction

Curriculum is what is taught in schools, instruction is how curriculum is delivered, and learning is what knowledge or skill has been acquired (Wiles et al., 2002). Teaching effectively requires the skill of a knowledgeable and experienced educator to implement curriculum and instruction in an environment conducive to learning (Flake, 2017). With the shift to online schools amid the current health pandemic, continuous monitoring and updating of curriculum and instruction is now even more necessary. With this need for online learning opportunities, there is a call for alternative school settings that differ from the traditional school to meet the needs of K – 12 students and their families as online schools are seeing dramatic increases in student enrollment (Molnar et al., 2019). Additionally, online learning platforms are complementing or replacing traditional classrooms (Eisenbach & Greathouse, 2019). Unlike traditional schools, various educational technology resources require a significant amount of specificity necessary in online schools to meet the needs of a variety of learners (Farmer & West, 2019). It becomes apparent that education must continue to evolve as students are exchanging traditional classroom interaction for online collaboration, pencils for keyboards, and textbooks for digital media. Therefore, educators must identify ways to ensure that the curriculum and instruction are meeting the needs of a variety of learners within this online context in an effort to assure learning for all students.

The emergence of the recent COVID-19 pandemic has caused serious public health concerns that have impacted education worldwide (Jones, 2020). This pandemic has led to massive adaptation in education, with a shift from in-person learning activities to a sudden heavy reliance on internet-mediated education (Sandars et al., 2020). Furthermore, some schools already had considerable educational technology in place, making such a shift easier for faculty, staff, and students, alike. However, for others, this shift required a considerable change in action for both educators and learners to continue to provide a sound education (Sandars et al., 2020). Research related to implications of teacher effectiveness in online schools is needed, as it is imperative that professional development is identified

to continue to drive teacher effectiveness in online schools, in addition to ensuring quality curriculum and instruction to continue to increase student learning and achievement.

Florida Virtual School, the nation's first statewide online public school established in 1997, saw its enrollment increase 54% for its individual online course offerings and 64% for full-time programs since the response of the COVID-19 pandemic (Lieberman, 2020). Furthermore, public school online programs managed by the for-profit provider K12 Inc. have grown from 122,000 enrollments in fall 2019 to 170,000 during fall 2020 (Lieberman, 2020). Additionally, Lieberman (2020) noted Connections Academy, a virtual school provider owned by Pearson, found an increase in enrollment of 61%. The elements of curriculum and instruction are critical to ensuring that educators are meeting the needs of all students. Continuous monitoring, updating, and reflecting on evidence-based instructional practices is crucial to providing individualized instruction to all students, specifically in online charter schools. These dynamic increases in online enrollment emphasize the need for adaptability on the part of educators and learners as an important overarching theme in continuing to educate students in challenging times.

### Data-Driven Decision-Making

Data-driven decision making is the ideal practice that decisions will be anchored in data, rather than simply being based on what one thinks should be the right course of action (Datnow, 2017). Data assessing elements of student learning, engagement, and student achievement are critical to creating purposeful, sustainable, and collaborative professional development (McBrayer et al., 2018) to provide best instructional practices that are research- and evidenced-based by teachers that can support overall student learning (Stahmer et al., 2020). Additionally, data-driven decision-making is crucial to creating professional development to ensure best practices in the classroom (McBrayer et al., 2018). This is imperative to ensure that the needs of students are being met to continue to guide evidence-based instructional practices creating an increase in student learning and engagement in the classroom.

Data-driven decision-making is needed for quality and effective education, as it is applicable in real life situations where teachers have to help students to apply evidence-based strategies that are most suited to their needs in an effort to improve student learning and motivation (Kurilovas, 2020). Additionally, to build a high-performing school system, school leaders need to be committed to learning from and with their teachers and support staff, and this is accomplished by promoting decisions backed up by data (Pak & Desimone, 2019).

In summary, each of the factors noted above is essential to understand what is required to retain teachers in the face-to-face classroom, and it is posited that these research implications translate to the online setting. Teacher retention is crucial to fostering relationships between students and teachers, thus leading to an increase in student learning and engagement. Furthermore, with the movement of students to online schools, the breadth of information provided in curriculum and instructional resources must meet the needs of our diverse learners. Additionally, through professional development provided by educational leaders, our teachers will have the support and knowledge to provide a foundation of learning in their classrooms focused on data-driven decision-making. Finally, there is a need to identify evidence-based practices that school leaders and teachers perceive as necessary for success in an online setting to guide the development of professional development that is purposeful, collaborative, and sustainable for online K – 12 setting (McBrayer et al., 2018).

## METHODS

### Research Design

This is a descriptive, correlational quantitative study utilizing a questionnaire for data collection. The questionnaire was intended to assess school leaders' and teachers' perceptions of teacher preparedness as it relates to student learning and engagement, curriculum and instruction, and data-driven decision-making. Furthermore, for the purpose of this study, while the independent variable changed with each research question, the dependent variable remained static to identify differences in perceptions of preparedness.

### Setting

Sunshine Virtual School (SVS), a pseudonym, is a school with statewide attendance in the Southeastern United States, as students from across the state are eligible to enroll in this tuition-free, online, accredited, public charter school. Paraphrased, SVS describes its mission as being a school focused on providing and supporting an interactive online learning environment that provides individualized and differentiated educational experiences that are student-centered to kindergarten through 12th grade students. SVS is a Title I school and receives financial support from local educational agencies for low-income children to help ensure that all children meet challenging state academic standards. Parents and students partner with certified teachers who instruct and guide student progress and achievement in the virtual classroom, where students participate both synchronously and asynchronously with direct and online instruction from their teachers.

### Sample

The employees of SVS include 34 certified school leaders, in the role of principal, assistant principal, lead teacher, curriculum coordinator, or instructional coach, and 487 certified teachers. It was imperative to evaluate the perceptions of both school leaders and teachers as school leaders are the second leading indicator of student performance behind that of only the classroom teacher (Grissom et al., 2021). All leaders in this online school have professional certificates, which indicates that the school leaders and teachers have met the minimum requirements for highly qualified status as outlined by the state's licensure agency via the issuing of this certification, the GaPSC (2021). The teachers at SVS have certifications that include induction certificates (provided to early career educators and educators new to the state of Georgia,) or professional certificates (held by novice and veteran teachers). The number of years the school leaders and teachers have been in the profession varies, ranging from educators in their first year of teaching to those with experience of more than 20 years. All school leaders and teachers at SVS were invited to complete the questionnaire, equating to a total population of 521. The final survey rate number was 242 responses received for a 46.4% response rate.

### Instrumentation

The questionnaire utilized for data collection for this research was modified from the teacher preparation questionnaire published in *Powerful Teacher Education: Lessons from Exemplary Programs* (Darling-Hammond, 2006). Evidence of validity and content reliability were provided by the original author prior to publication as the questionnaire was compiled from standards set forth by the Interstate Teacher Assessment and Support Consortium (INTASC) and National Board for Professional Teaching (NBPTS) as well as the literature relevant to teacher preparation (Darling-Hammond, 2006).

Qualtrics® was used as the anonymous questionnaire generator to collect the questionnaire data. Questions were Likert-scale based on a score ranging from 3 – 0, 3 = very well prepared (defined as very well with strong supporting evidence); 2 = well prepared (defined as well with limited supporting evidence); 1 = need more preparation; and 0 = not evident. The questionnaire was divided into three parts based on the themes noted among the questions identified. Part A examined school leaders' and teachers' perception of teacher preparedness for student learning and engagement. Part B addressed the theme of curriculum and instruction and Part C addressed the theme of data-driven decision-making.

Reliability analysis was conducted to determine whether scales perceptions of preparedness, degree of teacher preparedness to address student learning and engagement, degree of teacher preparedness to utilize curriculum and instruction, and degree of teacher preparedness to make effective data-driven decisions have good internal validity and reliability. The results show that all scales have excellent internal consistency reliability (Cronbach's alpha > 0.90).

### Data Analysis

ANOVA was used to identify any relationship that existed between differences in perceptions of teacher preparedness between school leaders and teachers for each of the three sections of the questionnaire (student learning and engagement, curriculum and instruction, and data-driven decision-making) based on their pathway to certification in the online K – 12 setting, the grade level or content supervised or taught in the K – 12 setting, and whether the respondent identified as a school leader or a teacher. These factors were identified as they are common in our prior research and the intent was to align the demographics to a larger data set around educator preparation. Descriptive statistics were used to determine the overall mean, median, and standard deviation for all questions in each section. Quantitative data from the scaled responses were used to provide an overall view of school leaders' and teachers' perceptions of teacher preparedness for the online classroom setting. Overall, analysis of the data was used to address the research questions by identifying commonalities for future implementation of purposeful, collaborative, and sustainable professional development.

## RESULTS

### Demographic Responses

The total number of respondents was 242; however, the questions in Qualtrics® did not require an answer selection for respondents to move through the questionnaire, and therefore most questions did not result in a 100% response rate. Out of the 242 survey responses, 125 (59%) noted their job title as a teacher and 87 (41%) were noted as a school leader, with job titles that included teacher, principal, assistant principal, lead teacher, curriculum coordinator, instructional coach, and support staff.

Out of the 242 survey responses received, 13 respondents had 0-3 years of experience in education (6.30%), 64 had 5-10 years (31.10%), 95 had 11-19 years (46.10%), and 34 had 20 or more years of experience in education (16.50%). Furthermore, 122 respondents had 0-3 years taught in an online K – 12 setting (61.30%), 64 had 5-10 years (32.20%), 12 had 11-19 years

(6.00%), and one had 20 or more years taught in an online K – 12 setting (0.50%). Five respondents had supervised or taught kindergarten (2.80%), 36 supervised or taught grades one through four, (20.20%), 75 supervised or taught grades five through eight (64.1%), 19 supervised or taught high school grades (10.70%), and 4 supervised or taught all grades (2.20%).

### Overall Perception of Preparedness

The average perceptions of preparedness for both school leaders and teachers were 1.54 (mean [M] = 1.54 on the Likert-scale; standard deviation [SD] = 0.74). The average degree of teacher preparedness to address student learning and engagement was (M = 1.55; SD = 0.74). The average degree of teacher preparedness to utilize curriculum and instruction was (M = 1.55; SD = 0.72). The average degree of teacher preparedness to make effective data-driven decisions was (M = 1.51; SD = 0.75). The means for each category fell between the values representing "needs improvement" and "well prepared with limited supporting evidence" indicating that more preparation is needed overall in the implementation of purposeful, collaborative, and sustainable professional development in each of these categories. See Table 1.

**Table 1**
**Descriptive Statistics: Perceptions of Overall Preparedness by Category**

| Variable | N | M (SD) |
|---|---|---|
| Perceptions of preparedness | 211 | 1.54 (0.74) |
| Degree of teacher preparedness to address student learning and engagement | 211 | 1.55 (0.74) |
| Degree of teacher preparedness to utilize curriculum and instruction | 211 | 1.55 (0.72) |
| Degree of teacher preparedness to make effective data-driven decisions | 211 | 1.51 (0.75) |

A one-way ANOVA was conducted to determine whether perceptions of online K – 12 teacher preparedness differed between school leaders and teachers in an online K – 12 school in each of the three categories identified, student learning and engagement, curriculum and instruction, and data-driven decision-making. The results indicated a non-significant difference, $F(6, 145) = 1.60$, $p = 0.150$. Therefore, it can be concluded that perceptions of online K – 12 teacher preparedness do not differ between school leaders and teachers in an online K – 12 school. See Table 2.

**Table 2**
**One-way ANOVA results for Overarching Research Question**

| Respondent Role | N | M | SD | F | p |
|---|---|---|---|---|---|
| Teacher | 125 | .73 | 1.17 | | |
| Principal | 3 | 2.01 | .88 | | |
| Assistant Principal | 2 | .95 | 1.34 | | |
| Lead Teacher | 10 | .85 | 1.16 | 1.60 | 0.150 |
| Curriculum Coordinator | 1 | .00 | - | | |
| Instructional Coach | 3 | 1.94 | 1.68 | | |
| Support Staff | 8 | .14 | .40 | | |

Note: Dependent variable: Perceptions of preparedness.

The effect of school leaders' level of experience on perceptions of online K – 12 teacher preparedness was examined using a one-way ANOVA. The results indicated non-significant differences between groups, $F(3, 81) = 0.75$, $p = 0.523$. It can therefore be concluded that there is no relationships between school leaders' level of experience and perceptions of online K – 12 teacher preparedness. A one-way ANOVA was conducted to determine whether teachers' level of experience is related to perceptions of online K – 12 teacher preparedness. The results indicated a non-significant relationship, $F(3, 117) = 0.59$, $p = 0.624$.

To determine whether perceptions of preparedness differ by the school leaders' pathway to education, a one-way ANOVA was conducted. The results were non-significant, $F(5, 80) = 2.17$, $p = 0.065$. Therefore, it can be concluded that there was no difference in perceptions of preparedness based on the school leaders' pathway to education.

A one-way ANOVA was conducted to determine whether perceptions of preparedness differ by the teachers' pathway to education and the results were non-significant, $F(5, 119) = 1.32$, $p = 0.262$ and it can be concluded that there was no difference in perceptions of preparedness based on the teachers' pathway to education.

To determine the effect of the grade level or content supervised by the school leader in the online K – 12 setting on perceptions of preparedness, a one-way ANOVA was utilized. The results indicated a non-significant difference, $F(5, 50) = 1.61$, $p = 0.176$ and it can be concluded that there was no relationship between grade level or content supervised by the school leader in the online K – 12 setting and perceptions of preparedness.

A one-way ANOVA was conducted to determine whether perceptions differ based on the grade level or content taught by the teacher in the online K – 12 setting. The results indicated a non-significant difference, $F(4, 117) = 1.15$, $p = 0.338$ and we can conclude that perceptions do not differ based on the grade level or content taught by the teacher in the online K – 12 setting.

### Student Learning and Engagement

To evaluate the first category of preparedness, a one-way ANOVA was used to examine the effect of school leaders and teachers in an online K – 12 school on perceptions of online K – 12 teacher preparedness for student learning and engagement. The results were non-significant, $F(6, 145) = 1.57$, $p = 0.161$ and it can be concluded that perceptions of online K – 12 teacher preparedness for student learning and engagement did not differ between school leaders and teachers in an online K – 12 school. See Table 3.

**Table 3**
**One-way ANOVA results for Student Learning and Engagement**

| Respondent Role | N | M | SD | F | p |
|---|---|---|---|---|---|
| Teacher | 125 | 0.73 | 1.16 | | |
| Principal | 3 | 1.94 | 0.83 | | |
| Assistant Principal | 2 | 0.79 | 1.11 | | |
| Lead Teacher | 10 | 0.83 | 1.15 | 1.57 | 0.161 |
| Curriculum Coordinator | 1 | 0.00 | - | | |
| Instructional Coach | 3 | 0.13 | 1.68 | | |
| Support Staff | 8 | 0.75 | 0.35 | | |

Note. Dependent variable: Degree of teacher preparedness to address student learning and engagement.

Furthermore, descriptive statistics were compiled for school leaders' and teachers' perceptions of teacher preparedness for part A of the survey related to student learning and engagement. School leaders and teachers felt that teachers were most prepared to support English Speakers of Other Languages (ESOL) in an online K – 12 setting ($M = 2.03$; $SD = 0.99$). However, school leaders and teachers felt that teachers were least prepared for

teaching in an online K – 12 setting as it related to the use of questions to stimulate different kinds of student learning (M = 1.25; SD = 0.49). Additionally, except for the element of teachers feeling prepared to support ESOL students, the averages for the remaining elements ranged from 1.25 – 1.86. On the Likert-scale with 1 = need more preparation and 2 = well-prepared with limited supporting evidence, the range of elements for student learning and engagement showed school leaders and teachers perceived teachers as needing more preparation in this area for the K – 12 setting. See Table 4.

### Curriculum and Instruction

To evaluate the second category of preparedness, a one-way ANOVA was conducted to determine the degree of teacher preparedness to utilize curriculum and instruction between school leaders and teachers in an online K – 12 school. The results were non-significant, $F(6, 145) = 1.83$, $p = 0.097$. It was concluded that the degree of teacher preparedness to utilize curriculum and instruction did not differ between school leaders and teachers in an online K – 12 school. See Table 5.

Furthermore, descriptive statistics were compiled for school leaders' and teachers' perceptions of teacher preparedness for part B of the survey related to curriculum and instruction. School leaders and teachers felt that teachers were most prepared to create an interdisciplinary curriculum in an online K – 12 setting (M = 1.75; SD = 0.79). However, school leaders and teachers felt that teachers were least prepared to integrate instructional technology into the classroom curriculum and pedagogy in an online K – 12 setting (M = 1.39; SD = 0.68). Additionally, the averages of all elements ranged from 1.39 – 1.75. On the Likert-scale with 1 = need more preparation and 2 = well-prepared with limited supporting evidence, the range of elements for curriculum and instruction showed school leaders and teachers perceived teachers need more preparation in this area for the K – 12 setting. See Table 6.

**Table 4**
**Elements of Preparedness for Part A: Student Learning and Engagement**

| Elements of Preparedness | M | SD |
|---|---|---|
| 6. The school leader or teacher perceives the teacher as prepared to present the concepts, knowledge, and skills of the discipline in ways that enable students to learn in an online K – 12 setting. | 1.39 | 0.64 |
| 7. The school leader or teacher perceives the teacher as prepared to understand how different students are learning in an online K – 12 setting. | 1.67 | 0.75 |
| 8. The school leader or teacher perceives the teacher as prepared to set challenging and appropriate expectations of learning and performance for students in an online K – 12 setting. | 1.50 | 0.69 |
| 9. The school leader or teacher perceives the teacher as prepared to help all students achieve academic high standards in an online K – 12 setting. | 1.58 | 0.68 |
| 10. The school leader or teacher perceives the teacher as prepared to relate classroom learning to the real world in an online K – 12 setting. | 1.39 | 0.59 |
| 11. The school leader or teacher perceives the teacher as prepared to understand how students' social, emotional, physical, and cognitive development influence learning in an online K – 12 setting. | 1.58 | 0.72 |
| 12. The school leader or teacher perceives the teacher as prepared to identify and address special learning needs and/or difficulties in an online K – 12 setting. | 1.86 | 0.85 |
| 13. The school leader or teacher perceives the teacher as prepared to teach in ways that support English Speakers of Other Languages (ESOL) in an online K – 12 setting. | 2.03 | 0.99 |
| 14. The school leader or teacher perceives the teacher as prepared to help students become self-motivated and self- directed in an online K – 12 setting. | 1.58 | 0.72 |
| 15. The school leader or teacher perceives the teacher as prepared to use effective verbal and nonverbal communication strategies to guide student learning and behavior in an online K – 12 setting. | 1.44 | 0.68 |
| 16. The school leader or teacher perceives the teacher as prepared to use questions to stimulate different kinds of student learning in an online K – 12 setting. | 1.25 | 0.49 |
| 17. The school leader or teacher perceives the teacher as prepared to develop a classroom environment that promotes social development and group responsibility in an online K – 12 setting. | 1.67 | 0.75 |
| 18. The school leader or teacher perceives the teacher as prepared to develop student's questioning and discussion skills in an online K – 12 setting. | 1.47 | 0.60 |
| 19. The school leader or teacher perceives the teacher as prepared to engage students in cooperative work as well as independent learning in an online K – 12 setting. | 1.64 | 0.79 |

**Table 4, *Continued***

| Elements of Preparedness | M | SD |
|---|---|---|
| 20. The school leader or teacher perceives the teacher as prepared to help students learn to think critically and solve problems in an online K – 12 setting. | 1.50 | 0.65 |
| 21. The school leader or teacher perceives the teacher as prepared to encourage students to see, question, and interpret ideas from diverse perspectives in an online K – 12 setting. | 1.47 | 0.60 |
| 22. The school leader or teacher perceives the teacher as prepared to understand how factors in the students' environment outside of school may influence their life and learning in an online K – 12 setting. | 1.53 | 0.76 |
| 23. The school leader or teacher perceives the teacher as prepared to give productive feedback to students to guide their learning in an online K – 12 setting. | 1.39 | 0.64 |
| 24. The school leader or teacher perceives the teacher as prepared to help students learn how to assess their own learning in an online K – 12 setting. | 1.61 | 0.68 |
| 25. The school leader or teacher perceives the teacher as prepared to evaluate the effects of their actions and modify plans accordingly in an online K – 12 setting. | 1.36 | 0.63 |
| 26. The school leader or teacher perceives the teacher as prepared to conduct inquiry or research to inform their decisions in an online K – 12 setting. | 1.67 | 0.78 |

**Table 5**
**One-way ANOVA results for Curriculum and Instruction**

| Respondent Role | N | M | SD | F | p |
|---|---|---|---|---|---|
| Teacher | 125 | 0.73 | 1.18 | | |
| Principal | 3 | 2.21 | 1.05 | | |
| Assistant Principal | 2 | 1.13 | 1.56 | | |
| Lead Teacher | 10 | 0.81 | 1.12 | 1.83 | 0.097 |
| Curriculum Coordinator | 1 | 0.00 | - | | |
| Instructional Coach | 3 | 0.13 | 1.70 | | |
| Support Staff | 8 | 0.76 | 0.35 | | |

Note: Dependent variable: Degree of teacher preparedness to utilize curriculum and instruction.

**Table 6**
**Elements of Preparedness for Part B: Curriculum and Instruction**

| Elements of Preparedness | M | SD |
|---|---|---|
| 27. The school leader or teacher perceives the teacher as prepared to develop a curriculum that builds on students' experiences, interests, and abilities in an online K – 12 setting. | 1.64 | 0.79 |
| 28. The school leader or teacher perceives the teacher as prepared to evaluate curriculum materials for their usefulness and appropriateness for students in an online K – 12 setting. | 1.58 | 0.76 |
| 29. The school leader or teacher perceives the teacher as prepared to create an interdisciplinary curriculum in an online K – 12 setting. | 1.75 | 0.79 |
| 30. The school leader or teacher perceives the teacher as prepared to use instructional strategies that promote active student learning in an online K – 12 setting. | 1.50 | 0.69 |
| 31. The school leader or teacher perceives the teacher as prepared to choose teaching strategies for different instructional purposes and to meet different student needs in an online K – 12 setting. | 1.47 | 0.69 |
| 32. The school leader or teacher perceives the teacher as prepared to integrate instructional technology into the classroom curriculum and pedagogy in an online K – 12 setting. | 1.39 | 0.68 |
| 33. The school leader or teacher perceives the teacher as prepared to present curriculum and pedagogy to students from a multicultural vantage point in an online K – 12 setting. | 1.61 | 0.76 |
| 34. The school leader or teacher perceives the teacher as prepared to use knowledge of learning, subject matter, curriculum, and student development to plan instruction in an online K – 12 setting. | 1.42 | 0.64 |

### Data-Driven Decision-Making

To evaluate the third category of preparedness, a one-way ANOVA was conducted to determine whether the degree of teacher preparedness to make effective data-driven decisions differed between school leaders and teachers in an online K – 12 school. The results were non-significant, $F(6, 145) = 1.50$, $p = 0.181$ and it was concluded that the degree of teacher preparedness to make effective data-driven decisions did not differ between school leaders and teachers in an online K – 12 school. See Table 7.

**Table 7**
**One-way ANOVA results for Data-Driven Decision-Making**

| Respondent Role | N | M | SD | F | p |
|---|---|---|---|---|---|
| Teacher | 125 | 0.73 | 1.18 | | |
| Principal | 3 | 2.00 | 0.88 | | |
| Assistant Principal | 2 | 1.19 | 1.68 | | |
| Lead Teacher | 10 | 0.94 | 1.24 | 1.50 | 0.181 |
| Curriculum Coordinator | 1 | 0.00 | - | | |
| Instructional Coach | 3 | 1.92 | 1.66 | | |
| Support Staff | 8 | 0.20 | 0.57 | | |

Note: Dependent variable: Degree of teacher preparedness to make effective data-driven decisions.

**Table 8**
**Elements of Preparedness for Part C: Data-Driven Decision-Making**

| Elements of Preparedness | M | SD |
|---|---|---|
| 35. The school leader or teacher perceives the teacher as prepared to provide a rationale for teaching decisions to students, parents, and colleagues in an online K – 12 setting. | 1.44 | 0.76 |
| 36. The school leader or teacher perceives the teacher as prepared to work with parents and families to better understand students and to support their learning in an online K – 12 setting. | 1.44 | 0.68 |
| 37. The school leader or teacher perceives the teacher as prepared to use a variety of assessments (e.g., observation, portfolios, tests, performance tasks, anecdotal records) to determine student strengths, needs, and progress in an online K – 12 setting. | 1.61 | 0.76 |
| 38. The school leader or teacher perceives the teacher as prepared to resolve interpersonal conflict in an online K – 12 setting. | 1.58 | 0.83 |
| 39. The school leader or teacher perceives the teacher as prepared to maintain discipline and an orderly, purposeful learning environment in an online K – 12 setting. | 1.31 | 0.57 |
| 40. The school leader or teacher perceives the teacher as prepared to plan and solve problems with colleagues in an online K – 12 setting. | 1.47 | 0.60 |
| 41. The school leader or teacher perceives the teacher as prepared to assume leadership responsibilities in the school in an online K – 12 setting. | 1.75 | 0.79 |

Furthermore, descriptive statistics were compiled for school leaders' and teachers' perceptions of teacher preparedness for part C of the survey related to data-driven decision-making. School leaders and teachers noted that teachers were most prepared to assume leadership responsibilities in the school in an online K – 12 setting (M = 1.75; SD = 0.79). However, school leaders and teachers stated that teachers were least prepared for teaching in an online K – 12 setting as it related to maintaining discipline and an orderly, purposeful learning environment in an online K – 12 setting (M = 1.31; SD = 0.57). Additionally, the averages for all elements ranged from 1.31 – 1.75. On the Likert-scale with 1 = need more preparation and 2 = well-prepared with limited supporting evidence, the range of elements for data-driven decision-making showed school leaders and teachers perceived teachers need more preparation in this area for the K – 12 setting. See Table 8.

## DISCUSSION

With roughly 40 to 50% of teachers in Georgia leaving the profession in their first five years, teacher attrition is exceptionally problematic for online education (Woods et al., 2019). Implications of differentiated instruction in the traditional classroom have led to increased self-efficacy, focused learning motives, and improved problem-solving skills in students (Lai et al., 2020), thus making it critical that student learning is differentiated to fully engage students in the classroom. Thus, quality teacher preparation through purposeful, sustainable, and collaborative professional development is needed to address high teacher attrition rates and increase the number of highly effective teachers that remain in today's classroom (McBrayer et al., 2018).

The first part of the questionnaire related to student learning and engagement produced a mean of 1.55 for preparedness. A mean of 1.55 indicated the school leaders and teachers did not perceive teachers as being adequately prepared for the K – 12 online setting. School leaders and teachers felt that teachers were most prepared to support ESOL in an online K – 12 setting; however, school leaders and teachers felt that teachers were least prepared for teaching in an online K – 12 setting as it related to the use of questions to stimulate different kinds of student learning. Educators who teach in the online setting need to be trained on monitoring students to ensure engagement (Sandars et al., 2020). Furthermore, schools identified with a positive school climate and high teacher morale can increase teacher retention linked to meaningful student-teacher relationships that can aid in increasing student learning and engagement (Ebaid, 2020). However, these questionnaire elements were marked low by respondents, thereby indicating a concerted need for professional development for online K – 12 schools to address this lack of preparedness.

The second part of the questionnaire related to curriculum and instruction produced a mean of 1.55, thus showing there is still a need for professional development as it involves meeting the needs of K – 12 teachers in the online setting with preparation for use of curriculum and instruction. School leaders and teachers felt that teachers were most prepared to create an interdisciplinary curriculum in an online K – 12 setting as it related to the implementation of curriculum and instruction. However, school leaders and teachers felt that teachers were least prepared to integrate instructional technology into the classroom curriculum and pedagogy in an online K – 12 setting. With the shift to online schools amid the current health pandemic, continuous monitoring and updating of curriculum and instruction are necessary (Ingram, 2016). In all, concerning curriculum and instruction, greater attention should focus on the scope, depth, and rigor of the online courses indicating that curriculum and instruction created for online schools does not fully encompass the realm of learning students need to be successful. Therefore, as research continues to evolve in the implications of curriculum and instruction as it relates to online platforms, it is imperative that professional development efforts support teachers in understanding and utilizing documents such as curriculum maps, scope and sequence documents, and other resources and platforms to better equip teachers to provide quality instruction.

The third part of the questionnaire related to data-driven decision-making yielded a mean of 1.51. This average is slightly lower than either of the previous two parts – student learning and engagement (1.55) and curriculum and instruction (1.55) – indicating that there is also a deficit in perceptions of teacher preparedness as related to data-driven decision-making. As data are utilized in similar ways in both the traditional and online school to aid in meeting both school and district goals (McBrayer et al., 2018), it would be expected that the mean for this section would be higher than the previous two sections: student learning and engagement or curriculum and instruction. Furthermore, in looking at the elements of data-driven decision-making, school leaders and teachers noted that teachers were most prepared to assume leadership responsibilities in the school in an online K – 12 setting. However, school leaders and teachers stated that teachers were least prepared for teaching in an online K – 12 setting as it related to maintaining discipline and an orderly, purposeful learning environment in an online K – 12 setting. Educators, school-level administration, and district leadership would benefit from professional development revolving around analyzing data trends to make the best-informed decisions. In all, carefully crafted and meaningful professional development is key to ensuring teachers are understanding and interpreting data in a similar manner while using the data to drive decision-making processes within their classrooms and to create instruction that is both student-centered and differentiated to meet the needs of all students.

## IMPLICATIONS FOR PRACTICE

The implications of this study are two-fold. First, to ensure teachers' perceptions of preparedness are at a high level, it is crucial to provide professional development; however, understanding what elements should be addressed during professional development is equally as critical for the success of the teachers, schools, and the district. Utilizing the three aspects of teaching outlined within the questionnaire will support the implementation of purposeful, collaborative, and sustainable professional development for the online K – 12 setting.

Second, when creating and implementing professional development, it is important to focus on the elements that do not transfer as easily from the traditional classroom. In a traditional classroom, the teacher can provide hands-on support to their students. This could include identifying when a student is late to class, when a student might be sleeping during class, or even when a student is solving a problem on their paper incorrectly. While these elements could translate to the online classroom, they look much different. While students are encouraged to be on camera during live class sessions, online students might find themselves distracted by their home environment or even walking away from the computer and never engaging during the class session. Providing professional development to teachers in the online K – 12 school with a focus on student engagement and instruction could be essential to increasing the degree of the perception of preparedness of the teacher in the online K – 12 setting. While the need for professional development has been noted by many researchers in the field (Desimone et al., 2002; Goe & Stickler, 2008; McBrayer et al., 2018; Parise & Spillane, 2010), pinpointing the specific elements of professional development that are key to high levels of perceptions of preparedness as indicated by the online teacher is critical to the retainment of the teacher and the overall advancement of student achievement.

While preparedness related to student learning and engagement and curriculum and instruction was rated higher than the third category of data-driven decision-making, using the components of each of the questions to create professional development will support teachers' perceptions of overall preparedness for the online K – 12 setting, while further retaining educators at SVS and in turn translate to other online learning environments. The understanding of data-driven decision-making can be transferred from the traditional school to an online school much more effectively; student learning and engagement and curriculum and instruction are not as easy to move out of the traditional classroom. Ensuring professional development is created and implemented at the start of the educator's introduction to the online school will be critical for the degree of preparedness the educator denotes

in the online K – 12 setting. This need includes intentional planning of professional development during new teacher training and orientation specific to student learning and engagement, curriculum and instruction, and data-driven decision-making, while also ensuring novice and veteran educators in an online K – 12 setting are gaining similar support via professional development.

## LIMITATIONS

As data were collected through an anonymous, de-identified, self-reported questionnaire, the generalizability of the results was identified as a limitation when assessing school leader and teacher perceptions of teacher preparedness in the online K – 12 setting. Since survey items were answered on a voluntary basis, responses could have been dependent upon job performance and job satisfaction, thus also serving as a limitation as participants may not have been honest about their teaching efficiency. Further, the nature of the survey did not allow for respondents to specify why they may have felt unprepared in different areas, and this will be addressed in future research. Factors such as years of experience, years in an online school, and the pathway to education might influence overall practices and job satisfaction of school leaders and teachers, as new and novice teachers may be more content with their work as compared to seasoned educators. This given sample received less representation for newer teachers, which may sway the assumptions that can be made given attrition. The researchers did acknowledge, however, that other educational practices may have also influenced the decisions of teachers in an online K – 12 setting such as content taught, assignment of their direct supervisor, teaching philosophy, to name a few.

## RECOMMENDATIONS FOR FUTURE RESEARCH

As discussed, SVS is an anomaly of a school. It has a statewide attendance zone, it is classified as a Title I school, it is 100% virtual, it is tuition free, and it is a charter school. Because of the specificity of the data to the school, the results may not be generalizable for other online schools. Furthermore, the implications for specific professional development might not be transferable. Therefore, future research should focus on ascertaining the perceptions of teacher preparedness from school leaders and teachers across a variety of virtual schools across the nation and worldwide; the researchers also believe the research should extend beyond that of quantitative research to include qualitative research is the form of one-on-one interviews as well as focus groups. Additionally, future research is needed to evaluate the reasons educators believe they are less prepared in online K – 12 settings. Ad-

ditional research may be imperative to evaluate other factors besides professional development not noted in this survey, such as school climate, funding, and teacher support to better understand what teachers need to effectively engage in teaching and learning. Specifically, a study evaluating how the needs of pre-service and new in-service teachers differ from novice and veteran teachers is warranted.

Further, it may be vital to understand the training provided to include trainings from university-based teacher education programs, within district or local level, professional organizations, online trainings or webinars, or another form of training, to better understand the modality in which educators are receiving professional development as well as delve into the quality of the professional development. We intend to mirror a recent study conducted by our research team looking at preparedness in a variety of other areas related to providing students an environment most conducive to learning to examine educators' perceptions and needs for professional development to ensure they are best prepared for today's classroom (McBrayer et al., 2020).

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