

Examining Differences Among K-12 Teachers' Motivation for Online Teaching

Anna Morrison
Clemson University

Julie Smart
Anderson University

Daphne Wiles
Clemson University

Luke Bennett
Baylor University

Abstract

This quantitative study aimed to determine K-12 teachers' level of motivation for online teaching and investigate possible differences in motivation according to group demographics. The Online Teaching Motivation Scale (OTMS) (Wiles et al., 2023) was used to collect data from K-12 teachers ($N = 62$) in the Southeastern United States between October 2023 and July 2024. Participants reported a mean motivation for online teaching of 2.66 ($SD = 0.52$) on a 4-point Likert-like scale. Significant differences in overall motivation and self-efficacy for online teaching were found when examining content areas (STEM versus non-STEM) and grade bands (elementary, middle, and secondary). Additionally, significant differences in perceptions of administrative support for online teaching were found among grade bands. Finally, teachers' perceptions of online teaching and learning showed significant differences between grade bands, content areas, and gender. Implications for school and district leaders are discussed based on these differences among demographic groups. Results also imply the need to develop and implement differentiated systems of support to meet the diverse needs of teachers using online tools in their classrooms.

Keywords: Online teaching; Teacher motivation; Differentiated support

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Introduction

The 2024 National Education Technology Plan outlines a call to action highlighting the need to address three “digital divides”: the digital use divide, the digital design divide, and the digital access divide (US Department of Education, 2024). The current study responds to this call to action, specifically addressing the digital design divide. The digital design divide can be defined as the “divide between and within those systems that provide every educator with the time and support they need to build their capacities to design learning experiences with digital tools, and those that do not” (US Department of Education, 2024, p. 34). The plan states that closing this divide will require “a clear vision, re-imagining systems of support, and bringing teachers to the table as co-designers of their professional learning” (US Department of Education, 2024, p. 34). These tasks require understanding teachers’ needs and their involvement in developing professional learning related to using digital tools in diverse classroom settings.

Teachers’ preparation is strongly correlated with student achievement (Darling-Hammond, 2000), indicating a crucial need for practical teacher training to equip educators with the tools necessary for online instruction (Johnson et al., 2023). Often, teachers do not receive training on best practices for online teaching in their formal teacher preparation programs, requiring that knowledge gap to be filled by continuing professional development (Barbour et al., 2012; Johnson et al., 2023). Closing the digital design divide will require school and district leaders to identify teachers’ deficit areas related to online teaching, solicit input from teachers regarding their professional development needs, and consider how teachers’ strengths might be leveraged to support other educators.

Further support for this work includes the rise in student enrollment in virtual schools and the continued integration of online tools in brick-and-mortar classrooms. Enrollment in virtual schools in the US nearly doubled from 2018 to 2023 (CCD, 2023), and even before the COVID-19 pandemic, the majority of public schools surveyed reported the use of online tools, such as interactive textbooks and experiences, to some extent in the classroom (Gray & Lewis, 2021). Given these trends, creating effective support systems for teachers will require understanding the status of K-12 teachers’ motivation for online teaching and identifying what differences in motivation, if any, exist among varied educator demographic groups.

The purpose of this quantitative study was to examine K-12 teachers’ overall motivation for teaching online and investigate variations in motivational levels for online teaching across multiple demographic variables. The findings from this study have the potential to serve as the foundation for the development and implementation of differentiated practices and support systems for K-12 teachers using online tools for instruction.

Review of Related Literature

Educators’ motivation for online teaching is impacted by both internal and external factors (Scherer et al., 2014; Petko, 2012; Baroudi & Shaya, 2022). These factors combine to influence how teachers report their efficacy for online teaching, their perceptions of administrative support, and their overall perceptions of the effectiveness of online learning (Wiles et al., 2023).

Internal and External Factors Affecting Teachers' Motivation

As virtual school enrollment continues to rise (CCD, 2023) and the use of online tools in the classroom increases (Gray & Lewis, 2021), a logical response is continued investigation of teachers' motivation related to online teaching. Internal factors that impact teachers' motivation to integrate technology in the classroom include self-efficacy for using technology, perceptions of technology's usefulness (Scherer et al., 2014), and beliefs that technology has the potential to improve student learning (Petko, 2012). These findings are consistent with prior research indicating that teachers' self-efficacy can predict individuals' willingness to try new strategies (Bandura, 1977; Thurlings et al., 2015). Since pedagogical strategies utilized in fully face-to-face settings are not always successful in online or technology-mediated learning environments (Barbour, 2012), an openness to acquiring additional skills and implementing new instructional approaches is necessary for effective online teaching.

External motivational factors, such as professional development (PD) and administrative support, are also relevant when addressing the evolving educational landscape. Support has been linked to teachers' use of technology integration in the classroom (Ertmer et al., 2012). Additionally, teachers' self-efficacy for online teaching is directly impacted by the availability of training related to designing online instruction and professional development (PD) specifically related to online teaching (Baroudi & Shaya, 2022). Ongoing training and PD pertaining to best practices in online teaching fills an unmet need for many teachers since, historically, traditional teacher education programs have not addressed these topics (Barbour, 2012; Johnson et al., 2023). PD is most effective if it models the type of online instruction the instructors will implement (Borup & Evmenova, 2019). It provides a powerful opportunity for teachers to navigate situations similar to what their students will encounter while learning in these educational settings. Collaboration among colleagues can also be an effective method of PD, impacting both teachers' technological pedagogical content knowledge (TPACK) self-efficacy (Verstraeten et al., 2025) and their technological integration practices (Ertmer et al., 2012). Finally, school leaders provided a critical support element for K-12 teachers, and their leadership styles have been linked to teacher effectiveness (Sirisookslip et al., 2015), job satisfaction, and well-being (Ertürk, 2022). Providing administrative support has become increasingly complex in the digital age (Hakansson Lindqvist & Pettersson, 2019). However, there is still limited research on strategies for effective leadership in online or blended school settings (McLeod & Richardson, 2014). Shortcomings in external support for teachers and school leaders pertaining to online teaching are evident (Barbour, 2012; McLeod & Richardson, 2014), requiring a data-informed response.

Methods

Survey Structure and Implementation

The Online Teaching Motivation Scale (OTMS) was selected as the data collection instrument for this study because it reliably measures K-12 teachers' motivation for teaching online and operates under a broad definition of online teaching encompassing multiple modalities (fully online, hybrid, in-person) and levels of digital tool integration (Wiles et al., 2023). The OTMS is a 24-item, Likert-type survey composed of three subscales: (1) teachers' self-efficacy for online teaching ($N=7$), (2) teachers' perceptions of online teaching and learning ($N=8$), and (3) teachers' perceptions of administrative support for online teaching

($N=9$). The OTMS was distributed to participants electronically using a secure Qualtrics link. No identifying characteristics were associated with the participants' survey data to maintain participant anonymity and encourage complete transparency in teacher responses.

Participants

Participants for this study ($N = 62$) were recruited using snowball sampling from elementary, middle, and secondary grades from states in the Southeastern United States (AL, GA, NC, and SC). Data collection spanned 10 months, beginning in October 2023 and concluding in July 2024. Teacher participants ranged in experience from two to 35 years ($M = 15.85$; $SD = 8.69$). Table 1 presents additional demographic data for the teacher participants.

Data Analysis

Data were analyzed using descriptive analysis, independent samples t-tests, one-way ANOVA, and Cronbach's alpha reliability. First, reliability was calculated for the summative Online Teaching Motivation Scale (OTMS) data and each subscale to analyze the internal consistency of the survey data. Next, descriptive statistics were reviewed to examine measures of central tendency for each variable. Independent samples t-tests were run to compare means for participants' summative scores for the OTMS and each subscale across the following independent variables: gender, teaching experience (novice/veteran), and content area (STEM/non-STEM). In addition, a one-way ANOVA was conducted to compare means of the summative scores for the OTMS and subscale data by grade band, which consisted of four levels (elementary, middle, secondary, and multiple grade bands).

Table 1

Participant Demographics

Variable	Percentage of Total Participants
Gender	
Male	6.5%
Female	93.5%
Teaching Experience	
Novice (<5 years' experience)	9.7%
Veteran (5+ years' experience)	90.3%
Grade Band	
Elementary	37.1%
Middle	12.9%
Secondary	40.3%
Multiple Grade Bands	9.7%

Content Area

STEM Content Area	33.9%
Non-STEM Content Area	66.1%

Note. $N=62$ for the total participant group.

Results

Reliability

Cronbach's alpha was calculated for the summative Online Teaching Motivation Scale (OTMS) (i.e., motivation) and each subscale (i.e., teacher perceptions of online teaching and learning, teacher self-efficacy for online teaching, and teacher perceptions of administrative support for online teaching). The original validation study for the OTMS (Wiles et al., 2023) examined data collected during the height of the COVID-19 pandemic (2020-2021); therefore, this confirmatory step was taken to evaluate the instrument's reliability in the present context (post-COVID-19). Reliability for all scales ranged from 0.91 to 0.94, indicating excellent internal consistency (George & Mallery, 2024).

Table 2

Summative OTMS & Subscale Reliability

Scale	Item Numbers	Cronbach's α
Self-Efficacy for Online Teaching	2, 5, 8, 11, 17, 19, 22	0.91
Perceptions of Online Teaching & Learning	3, 4, 6, 12, 15, 16, 18, 24	0.91
Perceptions of Administrative Support	1, 7, 9, 10, 13, 14, 20, 21, 23	0.91
Summative Motivation for Online Teaching	1-24	0.94

Descriptive Statistics

Descriptive statistics were reviewed for the summative Online Teaching Motivation Scale (OTMS) and subscale data. The items on the instrument are written with a positive orientation (e.g., "I am confident in my ability to make online learning engaging for my students"); therefore, the closer the score is to 4.0, the more positive the response (Wiles et al., 2023). The mean item response for the summative OTMS was 2.66, and the subscale means ranged from 2.49 to 2.84.

Table 3*Mean Item Response Descriptive Statistics for Summative OTMS and Subscales*

	N	Min	Max	M	SD
Self-Efficacy for Online Teaching	62	1.29	4.00	2.84	0.61
Perceptions of Online Teaching & Learning	62	1.00	3.88	2.49	0.63
Perceptions of Administrative Support for Online Teaching	62	1.22	3.89	2.67	0.62
Overall Motivation for Online Teaching	62	1.33	3.92	2.66	0.52

Note. 1=Strongly Disagree, 2= Disagree, 3= Agree, 4=Strongly Agree

Independent Samples T-Test

Independent samples t-test revealed multiple significant findings among the demographic groups examined. The sections below report these results across the following independent variables: gender, teaching experience, and content area.

Gender

The demographic question on the survey for the independent variable “gender” included multiple options (e.g., male, female, non-binary); however, respondents selected only “female” or “male.” As such, an independent samples t-test was appropriate for this demographic variable. The findings revealed a significant difference between male and female teachers’ perceptions of online teaching and learning, $t(60) = -2.159$, $p = 0.035$. Male teachers reported significantly more positive perceptions of online teaching and learning ($M = 3.13$, $SD = 0.54$) than female teachers ($M = 2.44$, $SD = 0.62$). There were no significant differences between male and female teachers in perceptions of administrative support, efficacy for online teaching, or overall motivation for online teaching and learning.

Teaching Experience

Participants were placed into one of two teaching experience groups: novice or veteran. Novice teachers had less than five years of teaching experience, while veteran teachers had five or more years of teaching experience. An independent samples t-test revealed no significant differences between novice and veteran teachers for overall motivation for online teaching, nor any of the subscales examined. Though not statistically significant, the data did reveal that veteran teachers reported higher motivation levels for online teaching ($M = 2.69$, $SD = 0.54$) than novice teachers ($M = 2.38$, $SD = 0.14$).

Content Area

Independent samples t-tests revealed multiple significant differences concerning teachers' content areas. Teachers in STEM content areas reported significantly higher efficacy for online teaching, $t(60) = 2.405$, $p = 0.019$, more positive perceptions of online teaching and learning, $t(60) = 2.895$, $p = 0.005$, and greater overall motivation for online teaching and learning than teachers in non-STEM content areas, $t(60) = 2.096$, $p = 0.040$. Table 4 provides a detailed comparison of the independent variables for these statistics.

Table 4

Differences in Motivation Between Content Areas

	<i>M</i>	<i>SD</i>	<i>p</i>
Self-Efficacy for Online Teaching*			0.019
STEM	3.10	0.54	
Non-STEM	2.71	0.61	
Perceptions of Online Teaching*			0.005
STEM	2.79	0.60	
Non-STEM	2.33	0.59	
Perceptions of Administrative Support			0.763
STEM	2.70	0.52	
Non-STEM	2.65	0.67	
Overall Motivation*			0.040
STEM	2.85	0.47	
Non-STEM	2.56	0.52	

Note. *Indicates a significant difference between content areas.

Grade Band

A series of one-way ANOVAs were conducted to investigate each dependent variable across the four levels of the grade band variable (elementary, middle, secondary, and multiple grade bands). In analyzing efficacy for online teaching, a one-way ANOVA revealed a statistically significant difference between grade bands, $F(3, 58) = 2.88$, $p = 0.043$. A Tukey post-hoc test revealed that efficacy for online teaching was statistically significantly higher for middle-grade teachers ($M = 3.29$; $SD = 0.55$) than for secondary teachers ($M = 2.62$; $SD = 0.64$). There was no significant difference for elementary teachers.

A one-way ANOVA revealed a statistically significant difference in perceptions of online teaching and learning between grade bands, $F(3, 58) = 3.64$, $p = 0.018$. A Tukey post-hoc test revealed that perceptions of online teaching and learning were significantly

more positive for middle-grade teachers ($M = 3.05$; $SD = 0.48$) than for secondary teachers ($M = 2.28$; $SD = 0.64$). There was no significant difference for elementary teachers.

A one-way ANOVA revealed a statistically significant difference in perceptions of administrative support between grade bands, $F(3, 58) = 4.96$, $p = 0.004$. A Tukey post-hoc test revealed that perceptions of administrative support were significantly more positive for elementary teachers ($M=2.97$; $SD=0.53$) than for secondary teachers ($M=2.35$; $SD=0.55$). There was no significant difference for middle grades teachers.

Finally, in analyzing overall motivation for online teaching and learning, a one-way ANOVA revealed a statistically significant difference between grade bands, $F(3, 58) = 4.34$, $p = 0.008$. A Tukey post-hoc test showed that both elementary teachers ($M = 2.81$; $SD = 0.49$) and middle-grade teachers ($M = 2.99$; $SD = 0.53$) reported significantly higher overall motivation than secondary teachers ($M = 2.41$; $SD = 0.45$).

Discussion

Findings from this study reveal both the potential and the challenges involved in building teacher motivation for online teaching. The average motivation score for K-12 teachers was 2.66 ($SD = 0.52$) on a 4-point Likert-like scale, suggesting room for meaningful growth in teachers' professional readiness for utilizing online teaching in K-12 settings. Given the significant differences identified across gender, content areas, and grade levels, it is clear that a differentiated approach to professional development and support is needed. These results reinforce the need for "re-imagined systems of support" to address the digital design divide (U.S. Department of Education, 2024, p. 34).

Regarding content areas, teachers in STEM fields reported significantly higher scores for self-efficacy, perceptions of online teaching and learning, and overall motivation for online teaching than their non-STEM counterparts. These findings highlight a chance to strengthen professional learning through cross-departmental collaboration. Encouraging dialogue between STEM and non-STEM teachers through multidisciplinary professional learning communities (PLCs) may foster greater confidence and provide innovative strategies for delivering instruction across all subject areas. Research by Long et al. (2024) supports this approach, finding that PLCs can enhance teacher motivation and willingness to take on new and challenging tasks.

While male teachers reported more favorable perceptions of online teaching and learning than female teachers, subgroup sizes were imbalanced, limiting the strength of inferences that can be drawn. Still, this finding points to the importance of examining how gender may influence teachers' motivation to use digital tools in their instruction. Additional data collection, including qualitative methods, is recommended to understand these findings further.

Concerning grade bands, middle-grade teachers reported higher levels of self-efficacy and more favorable perceptions of online teaching than their secondary counterparts. Similarly, elementary and middle school teachers reported higher overall motivation for online teaching than secondary education teachers. Given the strong links between teachers' self-efficacy, their instructional innovation (Bandura, 1977; Thurlings et al., 2015), and commitment to the profession (Chesnut & Burley, 2015), it is essential that professional

learning systems account for these disparities. Targeted support through coaching, modeling, or peer mentorship may help secondary teachers build the confidence and agency needed to engage students meaningfully in online learning spaces. Additionally, teachers who demonstrate strong motivation and efficacy for online instruction should be empowered to lead PD efforts and serve as peer mentors, creating leadership pathways that reinforce teacher expertise while driving innovation.

Finally, elementary teachers report significantly more positive perceptions of administrative support for online teaching compared to secondary teachers. Since administrators are a critical source of instructional support and influence (Ertmer et al., 2012), these findings suggest an opportunity for training to develop specific leadership competencies in administrators supporting teachers using digital tools in their classrooms. Districts could establish vertical team meetings to allow administrators across grade bands to exchange ideas and share practical support strategies, including evaluating existing observational protocols and feedback practices for teachers using online tools for instruction.

Limitations and Future Studies

There were some limitations of this study, including the size of the participant group and the imbalance in some of the subgroup sizes (specifically related to gender and teaching experience). While these limitations related to subgroups are worth noting, the imbalances within specific demographic subgroups are limitations not only in this study but also in the field of K-12 education, making it challenging to address. The 2020-2021 NCES report examining the characteristics of public-school teachers showed that males make up only 23% of the educator population, and early-career teachers with less than three years of experience contribute to only 7% of the educator population (NCES, 2023). In future studies, strategic planning of data collection methods could aid in gathering more data from these underrepresented groups. Data was also collected from a specific US region (the Southeast). Future studies should seek to diversify their participant group to areas across the United States to determine if the needs of teachers vary based on their geographic location.

Finally, future studies should probe teachers with questions designed to uncover specific inputs (such as instructional coaching, training, conference attendance, etc.) that contribute to their motivation for online teaching. These additional data collection methods would provide more detailed insights into why some teacher groups report higher motivation for online teaching than others, which could be drawn upon to support teachers with lower motivation levels.

Conclusion

The context of this study highlights the need for collective efforts across K-12 schools in the United States to establish robust support systems for teachers as they become more skilled and competent in designing learning experiences with digital tools (U.S. Department of Education, 2024). To be effective, these systems must account for internal and external factors influencing teachers' motivation to engage in online teaching. The findings suggest that a one-size-fits-all approach will be insufficient. Instead, differentiated professional learning and more customized support are critical to addressing the diverse and fluid needs of K-12 educators. Two emerging recommendations from the study are the development of multidisciplinary PLCs and integrating administratively vertical team

meetings. These structures foster collaborative spaces where teachers can share strategies, access peer support, and align digital practices across grade levels and content areas. Together, they form a foundation for sustainable professional learning that can adapt to evolving technologies and instructional models. Looking toward the future, we recommend several directions for research that include expanding the geographic scope of participants to capture broader regional differences and incorporating qualitative methods to uncover more profound insights into the types of support teachers perceive as most effective in fostering their motivation for online teaching. By addressing both the systemic and individual dimensions of teacher development, this research supports the creation of meaningful, context-responsive strategies for digital teaching and learning across K-12 settings.

Declarations

The authors declare no conflicts of interest associated with this article.

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