From Snow-Bound Pilot To Statewide Implementation: Lessons Learned From Kentucky's Nontraditional (Remote) Instruction Program, 2012-2021

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Foreword

In November 2020, the Education Assessment and Accountability Review Subcommittee approved a research agenda for the Office of Education Accountability that included a study of the Nontraditional (NTI) program. Beginning in 2011 with the Non-Traditional Instruction (NTI) pilot, Kentucky districts that missed an excessive number of days of school due to weather or other emergencies have had the opportunity to conduct school through virtual or other non-traditional means on days that the district would have normally had to call school off. Since 2014, all districts have been able to utilize non-traditional instructional days and all districts participated in NTI during the COVID-19 pandemic.

This publication includes a thorough examination of the efficacy of the program including studying its impact on attendance and student performance. A thorough description of similar programs in neighboring states' programs and approval processes is included.

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Summary

The Nontraditional Instruction Program (NTI) was established as the "snow-bound pilot" program in 2011; it was intended to assist districts experiencing high numbers of winter weather days to continue student learning and meet instructional hour calendar requirements. The program allows districts to provide remote learning opportunities and count up to 10 student attendance days per year when the district would otherwise be closed for health or safety reasons. NTI was extended as an opportunity to all districts in 2015 and nearly half of districts were participating by 2019. In response to the COVID-19 pandemic, the General Assembly modified the program in the 2020 and 2021 school years to allow for more than 10 NTI days and to allow districts to provide remote learning to some students even on days when the entire district was not closed.

Using a variety of district-, school- and student-level data from the Kentucky Department of Education (KDE), this report analyzes the implementation of and outcomes associated with the NTI program as originally enacted and as it was modified during the COVID-19 crisis ("COVID-era NTI"). It focuses on issues relevant to both phases of program implementation, especially student attendance and participation; student academic outcomes; the role of technology; and oversight.

Pre-COVID NTI

Program Benefits

The NTI program assists districts to meet calendar requirements when schools are closed for weather or safety. Educators report additional advantages of the program, such as increasing student and staff familiarity with digital learning; keeping students academically engaged through inclement weather; and engaging families in student learning. Compared with similar programs in other states prior to the COVID-19 pandemic, Kentucky's NTI program allowed a greater number of days and required more reporting and oversight.[a]

Academic Outcomes

As implemented through 2019, districts' participation in the program and use of NTI days had no substantial effect on student achievement as measured by state standardized tests; thus, there is no evidence to suggest greater concern about the quality of instruction that is typically provided on NTI days compared with weather makeup days. Data suggest likely variation, however, among districts and schools in the expectations for teachers and students on NTI days and in instructional opportunities offered students.

Student Attendance And Participation

Student participation data substitutes for student attendance data on NTI days. Whereas student attendance on in-person learning days is most often determined through instructional minutes,

[a] As one possible exception, Indiana's program allows more than 8 days only with permission of the state education agency.

student participation data have been based on performance-based measures such as completion of student work, or student log-ins to learning software. Prior to 2021, student participation data were reported as a single percentage for entire districts. On the surface, average NTI student participation rates look very similar to average state-level student attendance rates. Aggregate data mask substantial differences among schools and students, however. These differences emerged clearly when student-level participation data were collected in 2021.

COVID-19 Era NTI

Student outcomes observed in COVID-era NTI may not necessarily be relevant to the NTI program as normally implemented. Some of the insights and innovations emerging from remote instruction during the pandemic may serve to broaden learning opportunities and improve implementation of the NTI program in the future, however.

Non-Comparability Of Pre-COVID And COVID-Era Student Outcomes

Differences in the academic outcomes associated with remote learning in NTI pre-COVID and those observed in 2021 may be explained by increases in the amount of remote learning as well as out-of-school factors.

Percent Of Instructional Days Remote. While the maximum of 10 NTI days allowable under normal conditions is less than 6 percent of the instructional year in most districts, the average Kentucky student was instructed remotely more than 20 percent of instructional days in 2020 and 68 percent of instructional days in 2021. District remote instruction rates in 2021 ranged from 10 percent to 93 percent; remote instruction rates were greater in higher- versus lower-poverty districts.

Separate Effects Of COVID-19 On Student Outcomes. Data reported below show decreases in academic achievement and increases in chronic absence during the 2021 school year when student remote instruction increased. Students experienced many social, emotional, and economic consequences of the COVID-19 pandemic outside of schools. The effect of remote instruction versus other external factors on student outcomes is not yet clear.

Academic Outcomes

In 2021, increases in remote learning rates statewide were associated with decreases in student academic outcomes on state tests and increases in the percentage of high school students receiving failing grades. Increases in failing grades were greatest in highest-poverty schools.

Student Attendance And Participation

At the state level, participation rates of 93 percent in 2021 appear similar to attendance rates of 94 percent in 2019. In 2021, remote participation rates (94 percent) were higher than in-person participation rates (90 percent).

In 2021, KDE required that student participation data be entered daily into the state student information system. Student-level data allow for analyses of participation data that are not possible when districts submit data in aggregate. According to the nonprofit organization

Attendance Works, Kentucky was one of only two states that collected student-level attendance data in 2021 and as such is a model for the nation.

School-Level Differences. The range of school participation rates in 2021 was much greater than the range of school attendance rates in 2019 and many more schools fell in the upper and lower ranges. For example, while no Kentucky schools reported attendance rates of 99 percent or more in 2019, more than half of middle and high schools did so in 2021.

It is possible that some schools are more effective at engaging remote learners than others and that some students are more likely to participate in remote learning than they are to attend school. It is also possible that practices in reporting student participation varied among schools and that some set higher standards than others to consider students as participating.

Chronic Absence. Students are considered chronically absent when they miss 10 percent or more of enrolled days. Chronic absence increased from 19 percent in 2019 to 22 percent in 2021. The percent of students absent 30 days or more tripled during that time period, increasing from 2 percent to 6 percent. Increases in chronic absences were much greater for students attending higher-poverty schools; Hispanic and black students; and for English language learners.

Evidence And Oversight

Student Participation Data As Evidence Of Continued Learning

KRS 158.070(10) requires that districts provide evidence of continued student learning on NTI days. Student participation data are the most comprehensive source of data available to meet that statutory requirement. This report raises concerns that participation data as they are currently reported may not reliably indicate continued learning in all districts and schools. KDE guidance on criteria for student participation in 2021 required that participation be based on at least one source of evidence per day. Evidence could include student work, software log-in, or video/phone engagement with teachers. No minimum requirement was associated with the time spent on these activities; a single brief phone communication or student log in could theoretically indicate student participation for an entire day.

Moving forward, it is important that questions about the validity and reliability of student participation data be addressed if these data are to be useful as evidence of continued student learning during NTI days. Several of the report's recommendations relate to this goal.

Oversight

KDE provides oversight of NTI programs by requiring approval of NTI plans for program eligibility; auditing districts; and requiring individual approval for each NTI days. To be approved, districts submit district-level teacher and student participation rates, and a sample of at least three instructional documents. In the past, KDE has not denied NTI days based on the quality of evidence submitted.

KDE Participation Data Review 2021. In 2021, KDE conducted reviews of participation data in 30 randomly chosen districts, examining school-level records that support participation rates reported on specific days. This type of review offers a greater depth of insight than is possible

with the aggregate data normally submitted by districts to KDE as evidence of continuation of learning on NTI days. Participation data reviews have the potential, in the future, to uncover differences in the standards used by different schools and districts to support participation data; to identify districts that may be expecting less than others in student engagement; and to generate more consistent guidance on minimum standards expected in the future. Data available from learning management systems, described below, make possible much closer review of student participation data than was possible in the past.

Continued review of participation data in the future might offer a greater level of oversight than is currently provided by the requirement that aggregate data be submitted for individual approval of NTI days. Should the department continue these reviews or take additional steps that address the quality of student participation data, it may wish to consider whether individual approval of NTI days is necessary in the future.

Technology

Infrastructure Advances

Kentucky districts have long had critical technological components necessary to support remote learning, and their technological capacity to instruct remotely has been increasing over time as districts purchased student mobile devices and began to use learning management systems, like Google classroom, that facilitate remote communication between teachers and students and allow posting of assignments; sharing of student work; and links to a variety of other web-based learning resources. These learning management systems are increasingly able to capture and store data on student engagement, work completion, and learning.

Student Home Internet Access

Lack of home connectivity by some students remains an enduring challenge for districts in ensuring all students have access to remote instruction. In addition to its importance for NTI, student home internet access is important for equitable access to instruction during the regular school year. Research has demonstrated a “homework gap” which put students lacking home internet and device access at an increasing disadvantage.

As of 2020, 16 percent of students statewide lacked strong home internet access; percentages of students lacking access were greater in higher- versus lower-poverty districts. While KDE has been encouraging districts for over a decade systematically to collect data on student home internet access, over 40 percent of districts were estimating these data. Beginning in the 2022 school year, KDE required that districts collect data systematically rather than estimating.

Student Home Internet And Device Access COVID-Era

Whereas it has not been feasible in the past for most districts to address students’ lack of internet connectivity or device access comprehensively, districts were able to use the large influx of federal dollars during the COVID-19 crisis to address both challenges by purchasing large numbers of mobile devices and assisting families with home internet access. Student home device and internet access increased during 2021 and gaps between Kentucky and the nation

nearly closed. KDE did not collect student home internet access data in 2021 but did initiate frequent data collection by districts to determine whether students had access to the internet for schoolwork at any location outside the school campus; only 2 percent of students lacked any such connection in 2021.

Evolution Of Instructional Options.

Instructional modes during NTI pre-COVID evolved from primarily paper to predominantly digital means for middle and high school students. During COVID-era NTI, the overwhelming majority of instruction in all districts and grades was digital. Synchronous instruction, tutoring, or other engagement was rare on NTI days pre-COVID; in most districts, teachers were required to be available on NTI days but not required to instruct or proactively reach out to students. In contrast, most students received regular synchronous instruction in 2021. Synchronous instruction or engagement may be especially important for students that need additional academic or emotional support. In addition to synchronous instruction, a variety of additional instructional opportunities were available to students in 2021. For example, career and technical education students were able to engage in simulations and engage with virtual mentors.

Recommendations

Kentucky Department of Education

Related to issues discussed above, the report makes a number of recommendations directed toward the Kentucky Department of Education.

Recommendation 2.1

The Kentucky Department of Education should consider establishing, through guidance, minimum requirements for synchronous instruction or engagement that must be offered to students on nontraditional instruction days.

Recommendation 2.2

The Kentucky Department of Education should consider including evaluation requirements for nontraditional instruction (NTI) districts in annual submission of NTI plans that are contained in Comprehensive District Improvement Plans.

Recommendation 2.3

The Kentucky Department of Education (KDE) should continue to require districts to collect and record student-level data on student home internet and instructional device access using a standardized instrument recommended by KDE.

Recommendation 3.1

The Kentucky Department of Education should consider requiring nontraditional instruction (NTI) districts to enter student-level participation data in the state student information system for each NTI day.

Recommendation 3.2

The Kentucky Department of Education should consider establishing, through guidance, minimum requirements for instructional hour equivalents represented by participation data.

Recommendation 3.3

The Kentucky Department of Education should consider requiring schools to designate a certified person to verify participation data on nontraditional instruction days.

Recommendation 3.4

The Kentucky Department of Education should consider conducting annual reviews of nontraditional instruction participation data of selected districts.

General Assembly

The report makes two recommendations for the General Assembly to consider.

The report notes potential advantages to continuing the flexibility to provide remote instruction in individual schools. It is sometimes necessary for districts to close individual schools for health or safety reasons. Local boards do not have the authority to require that learning continue remotely in those schools, even when it is possible to do so. Most often, instructional hours for students in those schools are lost.

Recommendation 1.1

The General Assembly may wish to consider amending KRS 158.070 (9) to allow for continuation of learning for students in individual schools or other units that are closed for in-person instruction because of health or safety reasons on days when it is not necessary to close the entire district for those reasons.

Given concerns about the reliability of student participation data as a measure of continued student learning, it is notable that some districts receive more instructional hours per NTI day than others.

Recommendation 3.5

The General Assembly may consider amending KRS 158.070 (9) to establish a standard number of instructional hours that can be granted for each nontraditional instruction student attendance day.

Chapter 1

Introduction and Background

Introduction and Overview

The nontraditional Instruction program (NTI) permits districts to provide remote instruction for up to 10 days per year when the district is closed for health or safety reasons.

The Nontraditional Instruction Program (NTI) allows Kentucky districts to count up to 10 days per year as student attendance days when the district is closed for health or safety reasons. To participate, districts must plan for and document that student learning continues remotely.[a] The program began in 2011, as a way to assist districts experiencing high numbers of winter weather days. It was extended as an opportunity to all districts in 2015; by 2019, almost half of Kentucky districts were participating in the NTI program.[b]

NTI districts cite a variety of benefits to the program, in addition to the flexibility it offers in meeting calendar requirements. Districts not joining cite concerns about the quality of instruction on remote learning days.

Reasons cited by districts as incentives to join the program include maintaining a school mindset for students even during extended periods of school closures for weather; avoiding the necessity of keeping school open past the first week in June for weather makeup days; increasing engagement of families with academic content; and increasing student and staff familiarity with digital learning formats. Districts not electing to join cited concerns about the effectiveness of remote learning on NTI days compared with in-person learning. [1]

In response to the COVID-19 pandemic, the program was modified in the 2020 and 2021 school years, to allow for extended remote learning.

In response to the COVID-19 pandemic, the General Assembly modified the NTI program in the 2020 and 2021 school years to allow more than 10 days. It also allowed flexible, hybrid models that mixed in-person and remote instruction on the same day. In both school years, all 171 districts participated in the program.

The report analyses data for two distinct phases of the NTI program: NTI pre-COVID and COVID-era NTI.

Because of substantial differences in the NTI program prior to and during the COVID-19 pandemic, NTI during these two time periods cannot be directly compared. The study refers to these two distinct phases of implementation as Pre-COVID NTI and COVID-era NTI.

Because of its previous experience with NTI, Kentucky was likely better prepared than many states to provide remote instruction during the COVID-19 crisis. At the same time, the crisis generated

[a] The report uses "NTI" interchangeably with "remote instruction"—the term that has been used nationally to describe any form of instruction provided at a location remote from the school.
[b] This report refers to school years by the year in which the school year ends. For example, the 2010-2011 school year is referred to as 2011 and the 2018-2019 school year is referred to as 2019.

unprecedented advances in remote learning options and the potential of technology to capture and store student learning data. The report will discuss implications of these advances for the implementation of NTI in the future.

Description of This Study

The Education Assessment and Accountability Review Subcommittee (EAARS) requested that the report address NTI program efficacy; analyze impact on attendance and student performance; and review surrounding states' policies.

In November, 2020, the Education Assessment and Accountability Review Subcommittee requested that the Office of Education Accountability (OEA) study the Nontraditional Instruction Program. The committee requested that the study include a thorough examination of the efficacy of the program and include its impact on attendance and student performance. The committee also requested that the study compare the NTI program to similar programs in surrounding states, including approval processes.

The study analyzes data related to the NTI program as it was implemented in both Pre-COVID and COVID-era NTI, focusing on data of greatest relevance to both phases, especially attendance/participation measures; student outcomes; staffing models, and program oversight.

Major Conclusions

Between 2012 and 2019, NTI districts used an average of 5.4 NTI days per year; most did not reach the 10-day limit and continued to use weather days.

Pre-COVID-19 NTI.

- NTI was an innovative program that effectively assisted districts in meeting calendar requirements and reducing the number of days necessary to make up instructional hours lost when schools were closed for weather.[c] Between 2012 and 2019, districts used an average of 5.4 NTI days per year, rarely using the 10 days permitted by statute; most districts continued to take weather days even when they had not reached the 10-day NTI limit.

OEA found no substantial effects of the NTI program on student achievement when remote learning is limited to 10 days. Based on state test data alone, there is not cause for concern about the continuation of student learning on NTI days compared with weather makeup days.

- As NTI days represent a very small portion of the instructional year (up to 6 percent per year, but an average of less than 3 percent per year), it should not be expected that a district's participation in the NTI program would account for significant changes in student performance. Staff analysis of state assessment data between 2014 and 2018 indicate no substantial and significant effects of NTI days on student performance in reading or math. Based on state test data alone, there is not cause for concern about the

[c] Although NTI days can be used when a district is closed for any health or safety reason, they are primarily used during bad weather days.

continuation of student learning on NTI days compared with weather makeup days.

Kentucky's NTI program had more requirements and provided more oversight than did similar programs in neighboring states.

- Kentucky's NTI program had more requirements and provided more oversight than did similar programs in neighboring states. Yet, data analyzed for this report, including student and teacher participation data and district NTI plans, suggest variation in districts' expectations for students and teachers on NTI days and variation in the degree of internal oversight and evaluation among NTI districts.

The average Kentucky student was instructed remotely more than 20 percent of instructional days in 2021 and about 68 percent of instructional days in 2021. Statewide, Kentucky's remote learning rates exceeded those in most states.

In 2021, student chronic absence increased and student academic outcomes decreased. The relative effects of remote learning versus other factors are not clear. Some students may need more support than others on remote learning days.

Synchronous (face-to-face) instruction was rare in NTI pre-COVID but provided regularly in COVID-era NTI.

During COVID-era NTI, use of learning management systems (LMS) to coordinate instruction was almost universal. These systems also collect and store data on student work and engagement.

COVID-Era NTI.

- The average Kentucky student was instructed remotely more than 20 percent of instructional days in 2020 and 68 percent of instructional days in 2021. In 2021, remote learning rates varied among districts, ranging from a low of 10 percent to a high of 93 percent. Statewide, Kentucky's remote learning rates exceeded those in most states.

- In 2021, higher remote learning rates were associated with increases in chronic absence and decreases in student academic outcomes, especially for students in higher-poverty schools. The full implications of these findings for the NTI program as it is normally implemented with a limited number of remote days are unclear, but they suggest that some students may need more support than others on remote learning days.

- Instructional and staffing models evolved during COVID-era NTI compared with pre-COVID NTI:

    - Whereas in pre-COVID NTI staff were not typically required proactively to instruct or engage with students in real time (synchronously) or proactively reach out to families, these actions were common in COVID-era NTI;

    - Almost all schools at all levels used learning management systems (LMSs) that electronically link teachers, students, assignments, and instructional materials in 2021. These systems— which were not widely available when the NTI program was created— have become increasingly sophisticated at collecting and storing data on

In 2021, KDE required districts to enter student-level participation data in the state information systems for the first time. Kentucky has been called a national leader for its data collection in 2021.

student work and engagement and articulating with state information systems.

- In 2021, the Kentucky Department of Education (KDE) required districts to enter student-level participation data daily into Infinite Campus (IC), the state's student information system; in prior years, each district collected its own data and reported aggregate percentages to KDE. Because of its statewide, student-level, collection of participation data in 2021, the nonprofit Attendance Works has referred to Kentucky as a national leader in collecting remote participation data.[2]

As of Fall, 2020, 84 percent of Kentucky students had strong home internet access. Districts used COVID-19-associated federal funds to narrow gaps in student home access.

- As of fall, 2020, 84 percent of Kentucky students had strong home internet access. Taking advantage of an influx of COVID-19 associated federal funds, Kentucky districts were able to purchase technology and services to narrow home internet and device access gaps among Kentucky students. Gaps between Kentucky and the nation also narrowed in 2021. Absent continuing efforts, these gaps may reappear in the future.

Valid and reliable data on student home internet and device access are important. KDE has encouraged districts to collect data systematically. As of 2020, more than 40 percent of districts were estimating these data. Beginning in 2022, KDE has required systematic data collection.

General Conclusions.

- Ensuring equitable instruction on NTI days for students lacking home internet or device access is an enduring challenge for NTI districts. Valid and reliable data on student home internet and device access are critical for NTI districts and are also an important equity indicator throughout the school year. For over a decade, KDE has required Kentucky districts to submit data on student home internet access and has encouraged districts to collect data systematically. Many but not all Kentucky districts collect data systematically; as of 2020, more than 40 percent of all districts (and also 40 percent of NTI districts) reported that data they submitted to KDE were based on estimates. Beginning in 2022, KDE has required systematic data collection.

Student participation data have the potential to be a strong source of evidence that student learning continues on NTI days. Participation data as currently submitted by districts may not be reliable. Evolution in LMS technology allow for closer monitoring of data in the future.

- Student participation data have the potential to be a strong source of evidence that student learning continues on NTI days. Participation data as currently submitted by districts to KDE may not be a reliable indicator, however. In both pre-COVID and COVID-era NTI, districts appear to have varied in the criteria they use to determine that students are participating on NTI days. Evolution in LMS technology—especially the ability of systems to store instructional data

and integrate it with the student information system—provide potential for closer examination of student participation data in the future. While consensus on specific criteria that should be required for student participation data is currently lacking, lessons learned from remote learning in Kentucky and in other states can inform these criteria in the future.

Data analyzed for this study are primarily from the Kentucky Department of Education (KDE).

Data Used for the Report

Data used for this report came primarily from KDE, including:

- Student-level data from Infinite Campus for school years 2017-2021, including student enrollment, attendance/participation, demographic characteristics, program eligibility, and high school grades;
- School report card data for school years 2017-2021;
- Opportunity to Learn questions within the Quality of School Climate and Safety survey administered by KDE to all students in tested grades in 2021;
- Student level- state assessment data from 2014-2019 from the Office of Assessment and Accountability;
- District amended calendar data on weather days, and total instructional days 2011-2020;
- NTI program data including NTI days used since 2012 and student and teacher participation rates reported by districts to KDE for 2015- 2020;
- NTI applications and reapplications submitted by districts to KDE 2017-2021;[d] and
- Interviews with KDE program staff for NTI, Career and Technical Education, special education, and continuous improvement.

In addition, staff reviewed national literature and policies of surrounding states.

Due to the COVID crisis, the study contains limited data from educators.

Limitations

Due to COVID-related limitations, the report does not include any interview, survey, or site visit data from Kentucky districts or

[d] State agency retention schedules require that documents such as NTI applications be retained for only two years. Of the NTI program applications analyzed, only 13 included complete descriptions of NTI programs; the remainder were reapplications that included only summary reviews. Analysis of district NTI practices prior to the COVID-19 pandemic are based almost entirely on these 13 applications; NTI districts analyzed may not be representative of all districts.

schools.[e] It therefore contains limited data on NTI program implementation or challenges/benefits associated with the program from educators' perspectives.

The report does not focus on pandemic-specific issues. The relative impact of remote learning versus out-of-school factors on COVID-era student outcomes is not clear.

The report focuses on data likely to be relevant to the NTI program as it is described in statute and implemented in a typical year. It does not address the many COVID-19-era specific challenges confronting schools in 2020 and 2021. These challenges include public health-related issues that affected students, staff, and school protocols; labor shortages; and other adaptations of the program specific to the COVID-19 pandemic. Caution should be taken in interpreting academic outcome data reported for COVID-era NTI; the relative effects of remote learning versus other factors affecting students during the pandemic are not yet known.

Organization Of the Report

Chapter 1 describes the statutes, regulations, and guidance governing the NTI program, including how they were adjusted in response to the COVID-19 pandemic. It also compares the pre-COVID NTI program to similar programs in neighboring states.

Chapter 2 describes implementation of the program, including NTI days used and districts that participated in the program prior to 2020. It includes data on the percentage of instructional days that students were instructed remotely in 2021; a comparison of pre-COVID and COVID-ear NTI, and an analysis of district data on technological readiness and student home access.

Chapter 3 analyzes student outcomes, including attendance (measured as participation during NTI), achievement on standardized tests, and high school grades.

NTI Program Background

School Closures And Calendar Requirements

Local boards of education have the authority to close schools when the health and safety of children is endangered but must also ensure that schools provide a statutorily-defined full instructional year of 1,062 hours on at least 170 student attendance days. Districts adopting a variable instructional calendar may meet these hours in as few as 152 student attendance days. [f]

[e] As one exception, staff conducted brief interviews with Directors of Pupil Personnel (DPPs) in four districts to verify student participation data reported to KDE in 2021.

[f] KRS 158.070(1) (h) allows districts implementing variable instructional calendars to meet the 1,062 hour requirement on the number of days designated by a local board. KRS 158.070 (2)(f) requires districts adopting a variable

When local boards close schools for health or safety reasons, they must still ensure that schools provide at least 1,062 instructional hours per year. Makeup days due to weather may cause districts to extend school years far into June.

Dangerous wintry weather conditions are the most frequent reason for districts to close schools. Days when districts are entirely closed because of weather are called "weather days." Traditionally, districts make up instructional hours lost on weather days by adding hours on to existing school days and using "makeup days." Districts are required to include makeup days in their calendars "equal to the greatest number of days missed system-wide" over the preceding five years.[g] In bad weather years, the makeup days necessary to meet instructional hours may require districts to extend the school year far beyond original calendar schedules and well into June.

While districts facing extreme hardships due to a high number of closures may request emergency day waivers from instructional hour requirements, they must first make up at least 20 of the student attendance days that have been missed. E[h3]

History Of NTI

Figure 1.A shows a timeline of major developments in the NTI program. The program began as the "snow-bound pilot" in 2011, as a way of assisting districts that routinely have high weather days to meet calendar requirements. In the pilot phase, districts were required to have missed an average of 20 school days in the previous three years to qualify. In the 2012 through 2014 school years, three districts participated in the pilot program.[i]

In 2014, the General Assembly expanded program eligibility to all school districts and in 2018 it added district and KDE oversight and reporting duties to program requirements.[j] Beginning in 2015, increasing numbers of districts applied for and were accepted into the program. As of the beginning of 2020, 85 districts were eligible

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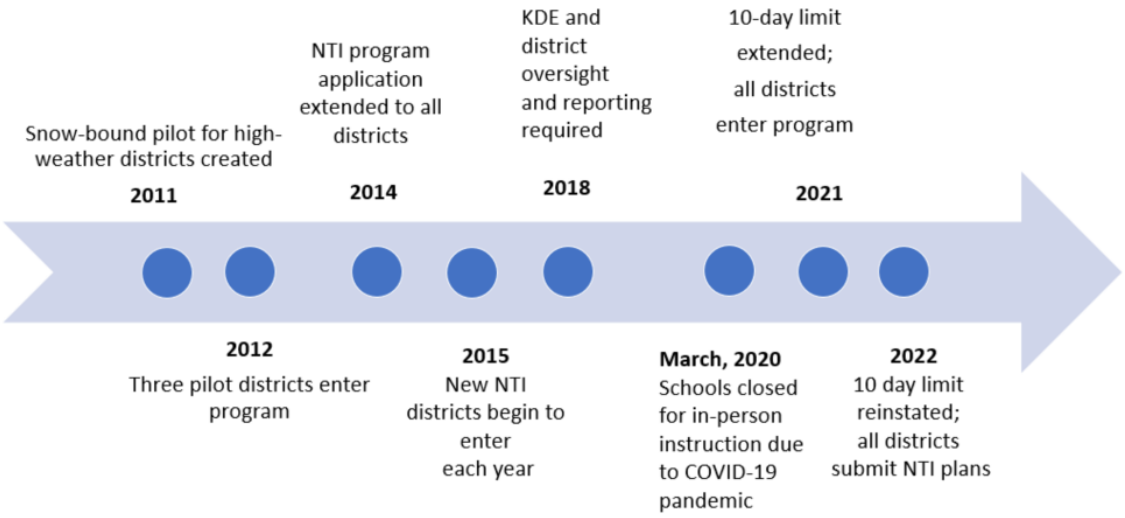
instructional calendar to begin school on or after the first Monday closest to August 26th and permits up to 7 instructional hours on student attendance days. A district implementing a 7-hour instructional day could meet the 1,062 hour requirement in as few as 152 days. Three of four districts implementing a variable instruction calendar in 2019 were NTI districts.
During the 2020 school year 6 districts had variable instructional calendars. Due to the uncertainty brought on by the pandemic, 53 districts adopted variable instructional calendars for the 2021 school year.

[g] 702 KAR 7:140 Sec. 1(4).
[h] There were 22 districts that had 79 total disaster day waivers for school years 2011 to 2019. The majority of disaster day waivers (67 of 79) occurred during the 2011 to 2014 school years. During the 2015 to 2019 school years there were 6 districts with 12 total disaster day waivers, and none of those districts were in the NTI program at the time of the waiver.
[i] Leslie, Owsley, and Wolfe Counties.
[j] House Bill 211 of the 2014 Regular Session expanded program eligibility and Senate Bill 73 of 2018 added reporting and oversight duties.

to participate. Chapter 2 provides additional details on when districts entered the program; geographic and demographic characteristics of NTI districts; and average numbers of NTI days used per year.

As will be explained in greater detail later in this chapter, the General Assembly permitted all 171 school districts to apply for the program in the spring of 2020 following Governor Beshear's declaration of a state of emergency for the COVID-19 pandemic and request that all districts close schools. The General Assembly also lifted the 10-day NTI limit for the end of the 2020 school year and again for the 2021 year.[k] In 2022, all districts applied to participate in the program, which returned to its statutorily defined 10-day limit.

Figure 1.A
Timeline of Major Developments In NTI Program



Statutory Requirements Of NTI Program

As authorized by KRS 158.070(9)-(10), The NTI program allows districts to continue instruction and count up to 10 days of student attendance when the school district is closed for health or safety reasons;[l] to be eligible, districts must have NTI plans approved by the commissioner of education. Plans must indicate:

[k] Flexibilities granted by the General Assembly were also granted by the Kentucky Board of Education, through emergency regulations.
[l] 702 KAR 7:140 Section 1(a) gives local boards the authority to set the length of each student attendance day. Student attendance days must be a minimum of

To participate in the NTI program, districts must have plans approved by the commissioner of education.

- How the NTI process shall be a continuation of learning that is occurring on regular student attendance days; and
- Instructional delivery methods, including the use of technology.

The statute requires the Kentucky Board of Education (KBE) to determine how districts receive average daily attendance (ADA) for the Support Education Excellence in Kentucky (SEEK) formula for NTI days and also to determine implementation, reporting, and oversight responsibilities of KDE and districts. Appendix A contains the complete statutory language.

The NTI program is regulated through 701 KAR 5:150. The statutorily-required regulatory components of the program are summarized below, along with associated KDE guidance. Appendix B contains the full regulation.

Regulatory Requirements Of NTI Program: SEEK Funding

No connection exists between student attendance on NTI days and school funding.

702 KAR 7:125 sec.10 allows districts to include, for each NTI day, the previous year's ADA. ADA used in funding calculations for the SEEK formula is normally derived from student attendance on each instructional day. By using the previous year's ADA rather than student participation rate on NTI days, the regulation detaches NTI student participation from funding.

Regulatory Requirements Of NTI Program: Accountability, Reporting, And Oversight

KDE provides oversight of the NTI program by approving district NTI plans; requiring districts to report data and submit documents for each NTI day used; and conducting audits.

Figure 1.B outlines the main elements of district reporting and accountability that are specified in the regulation. Each element is described following the figure.

6 hours and can be a maximum of 7 hours. Data presented in Chapter 3 raises questions about whether participation data as currently collected are valid for awarding some districts more hours than others for NTI days.

Figure 1.B
District And KDE Roles In Ensuring District Accountability For Continued Student Learning On NTI Days

NTI Plans	District Reporting	KDE Audits Of Districts
• Districts submit plans to KDE that address required elements including: • instruction • staffing • special populations • students without internet • KDE approves plans if all elements addressed	• For each NTI day used districts submit to KDE: • Student participation data • Teacher participation data • Instructional documents (1 per grade level) • KDE approval required for ADA to be granted	• KDE may visit districts, conduct interviews, review documentation • KDE may revoke a district's NTI participation status

Source: Staff analysis of 701 KAR 5:150 and KDE guidance.

District NTI Plans

To be eligible for the NTI program, a district must include an NTI plan annually in its Comprehensive District Improvement Plan (CDIP).[m] The plan must describe how instruction will be delivered and how the district will ensure that learning will continue, including for special education students with Individualized Educational Plans (IEPs) and other special populations. It must describe how teachers will instruct and communicate with students to ensure academic progress as well as social and emotional well-being; NTI-related professional learning that will be provided to teachers; and how various categories of staff will be deployed on NTI days.[n] Finally, the plan must describe how the district will coordinate with other community agencies and how it will communicate with parents, students and community members during NTI. [o]

[m] The regulation was revised in 2021. In prior years, school districts submitted NTI plans to KDE in a separate process.
[n] KDE has clarified that NTI days are considered teacher work days and that teachers, along with other certified staff, must work at the location specified by the district, or use leave days. Districts have discretion as to whether various categories of classified staff work on NTI days or complete work-related tasks at other times to fulfil contract days. Districts must cover the costs of any staff salaries paid out of transportation reimbursement or federal food reimbursement as there is no funding available from those sources on NTI days. See pp. 9-10 of KDE's 2020 document "The Non-Traditional Instruction Program Guidance Document" referenced in endnotes.
[o] 701 KAR 5:150 Sec.2.

District Reporting Requirements

Through guidance, KDE has required districts to submit evidence that student learning continues for each NTI day.

To be approved for an NTI day, KDE requires districts to submit participation data for students and teachers. Criteria for student participation use performance-based measures such as student work or engagement. Prior to COVID-19, districts were given discretion to determine criteria.

Student Participation Data. While regulation does not establish any direct link between student participation in NTI and ADA granted for an NTI day, KDE requires that districts collect and submit student participation data in order to receive ADA for NTI days. Student attendance is usually determined from instructional time received by students during in-person attendance. In contrast, criteria for student participation reflect performance-based measures such as student work or engagement. As shown below, the department gave districts discretion to determine participation in NTI pre-COVID:

> As Non-Traditional Instruction days are considered instructional days, all K-12 students are expected to participate. Districts may determine what participation is for students, whether it be accessing online course work, completing a project or paper assignment, or other method of participating in instructional activities. Districts track and report to KDE the overall district student participation rate for each NTI day. There is no minimum percentage of student participation that is necessary for a Non-Traditional Instruction day to be approved by the Commissioner; however, a low student participation number may result in an NTI day not being approved.[4]

Teacher Participation Data. Through guidance, KDE has also required districts to submit teacher participation data. In case of audit, districts are advised to keep evidence including job duties, teacher work logs and other documents demonstrating employee participation on NTI days. [p]

Districts must also submit one sample instructional document for each school level.

At Least One Sample Document Per School Level. 701 KAR 5:150 (3) provides student work, lesson plans, or curriculum maps as possible sources of evidence that student learning is continuing on NTI days. Through guidance, KDE has required that districts submit at least one of these forms of evidence for each school level in the district (i.e., elementary, middle, high). While not required to submit any other forms of documentation, KDE encourages

[p] 701 KAR 5:150 sec.4(g)

districts to retain other sources of evidence in case these documents are requested by KDE.[5]

Statute requires evaluative procedures of districts. NTI application procedures have recently been revised and the evaluation requirements have not yet been defined.

Evaluation Procedures Required Of The District

KRS 158.070(10) requires KBE to determine, through regulation, evaluative procedures required of the district.

701 KAR 5:150 does not describe evaluative procedures required of the district. In the past, participating districts were required annually in NTI program reapplications to "reflect on the effectiveness of their NTI program and describe changes being proposed in order for the program to grow in rigor and efficiency."[6]

District evaluative requirements have not yet been outlined in the CDIP process.

701 KAR 5:150 does not describe specific oversight responsibilities of districts. Following discussion of student participation data in Chapter 3, OEA recommends increased oversight responsibilities for districts of student participation data.

KDE Audits Of Districts

701 KAR 5:150 sec. 4 permits but does not require KDE to conduct NTI district site visits or documentation reviews.

At the conclusion of the school term, KDE may conduct a district site visit which includes examining records related to implementation of the district's NTI plan and interviews of district leadership, staff, students, and other stakeholders.

KDE may also inspect a variety of district records as described in detail in 701 KAR 5:150 sec. 4(3). These include records on how the district provides NTI through online resources and how it provides instructional materials for students who lack internet access or who need to access information differently.

After review of evidence as described above, KDE may revoke a district's NTI eligibility. Before doing so, KDE must schedule a site visit from a review team to monitor the district's progress in implementing NTI.

The regulation does not specify any reporting requirements for KDE. Following a discussion of student participation data in Chapter 3, OEA recommends additional oversight responsibilities for KDE in reviewing participation data.

Adjustment To The NTI Program During The COVID-19 Pandemic

The NTI program was adjusted during the COVID-19 pandemic to allow for more than 10 NTI days and to permit districts to instruct students remotely even when the entire district was not closed.

Extended School Closures

Following executive order requests from Governor Beshear, Kentucky districts closed schools for in-person instruction from March 16 through the end of the 2020 school year. Most local boards also followed the governor's recommendation that schools be closed for in-person instruction at the beginning of the 2021 school year and for portions of the winter months of that year. Local boards also closed schools in response to Kentucky Department of Health guidance that recommended building closures based on certain COVID-19 incidence rates.

Remote learning continued for many districts even when buildings reopened; districts offered a "hybrid" combination of in-person and remote instruction, in order to reduce the number of students in buildings on individual days and allow for social distancing recommendations in public health guidelines. In addition, some families elected to keep their students in remote learning modes even when in-person instruction was available.

Statutory Requirements Waived

During the 2020, 2021, and 2022 school years, the NTI program was adjusted in a number of ways, to accommodate districts' need for extended and more flexible remote learning days. [q]

10-Day NTI Limit Extended. From March 2020 through the end of the 2020 school year and through most of the 2021 school year, districts were permitted to use more than 10 NTI days. [r] The limit of 10 NTI days as established in KRS 158.070 (9) was not lifted in 2022.

Hybrid Options Permitted. As required by KRS 158.070(9), NTI can only be provided on days when the entire district is closed. During COVID-era NTI, districts were permitted to combine in-person and remote instruction on the same day. Senate Bill 1 of the 2021 Special Session limited to 20 the number of days that districts could close only individual units within the district.

[q] NTI program adjustments in 2022 are reported only through October of 2022.
[r] The waiving of the 10-day limit was addressed through emergency regulations by KBE in both years, by Senate Bill 177 in the 2020 Regional Session and by HB 208 in the 2021 Regular Session. HB 208 limited the use of additional NTI days as of March 29, 2021 to districts providing the equivalent of two days of in-person instruction for each student per week.

School Funding Calculations. Combining in-person and remote instruction on the same day would normally create complications for the calculation of school funding in the subsequent year as those modes are normally funded by separate calculation; ADA for in-person instruction is based on attendance whereas ADA for NTI days is based on previous year's ADA. In the 2020, 2021, and 2022 school years these complications did not apply because student attendance for in-person learning was not linked to SEEK funding.[s]

Student Participation Reporting

As noted above, pre-COVID NTI left participation data standards to districts and required that district-level data be reported. Student participation data requirements evolved during COVID-era NTI as described below.

NTI Student Participation Reporting In 2020. From March 19 through the end of the 2020 school year, KDE adjusted requirements for district reporting of student participation rates from once per NTI day to once per week.[t] Further, whereas instructional hours granted for NTI normally vary among districts based on each district's student attendance day, Interim Commissioner Kevin Brown granted 7 instructional hours per day for every district.

In 2021, KDE required districts to record student participation data in the state's student information system and to determine student participation based on student (individual or group) communication with teachers by phone or video; student time logged into software; or paper assignment completion.

NTI Student Participation Reporting In 2021. In 2021, KDE required districts to enter student participation on remote learning days daily into the state's student information system, Infinite Campus (IC). Through guidance, KDE required that participation be entered once per day and that it be based on at least one of four criteria:

- One-on-one video communication or phone calls between teacher and student (or teacher and parent with smaller children or students with special needs);

[s] This was accomplished through KBE emergency regulations, by SB 177 of the 2020 regular session, HB 208 of the 2021 Regular Session, and SB 1 if the 2021 Special Session.. Districts were given the option in SB 177 of choosing 2020 or 2019 ADA as a basis for future funding. Districts' choices subsequently extended through 2021.

[t] According to the nonprofit Attendance Works, less than one third of districts nationally collected student attendance data in spring, 2020 when schools closed for in-person instruction.

- Group video communication or phone calls between the teacher and a whole class or between a teacher and smaller groups of students within a class;
- Student time logged into an LMS while completing assignments;
- Submission of paper-based assignments for students in a non-digital, non-traditional setting.[7]

In House Bill 208 of the 2021 Regular Session, the General Assembly also required districts to enter student participation daily into the state student information system based on the same criteria.

As will be discussed in Chapter 2, Kentucky was identified as a national leader in 2021 for being one of only two states that collected daily attendance (participation) data during remote learning.

NTI Student Participation Reporting In 2022. In 2022, KDE advised NTI districts to return to the practice of reporting aggregate district student participation data, rather than the student-level data required in 2021, for each NTI day. One factor affecting this decision was the lack of permanent coding options in IC to record student-level NTI participation data.[8]

Non-NTI remote options in 2022 required that instructional time be considered in reporting student participation or attendance.

Additional Remote Options And Associated Participation/Attendance Requirements. As described in Appendix C, actions taken by both the General Assembly and by KBE in 2022 added time-, content-, and process- related requirements to student participation reporting that have not existed in the past. These requirements were not related directly to the NTI program but may have implications for participation reporting in that program in the future.

Potential Continuing Benefits Of Flexible Remote Options

There may be benefits to continuing districts' ability to provide remote learning when the entire district is not closed. It is sometimes necessary to close an individual school. Under currently law, boards cannot require learning to continue in individual schools that are closed; instructional hours are often lost for students in those schools.

Prior to the COVID-19 pandemic, it was also sometimes necessary for a district to close one or more schools for health or safety reasons but not the entire district. According to KDE staff, this happens most frequently with issues such as floods, water main breaks, and bomb threats.[u] [9]

Local boards have the statutory authority to close individual schools when a health or safety concern is unique to one or more schools and can apply for a waiver from the commissioner of

[u] Data on frequency of individual school closures were not available for this report. KDE staff reported that closure of individual schools are not common every year, but can occur sporadically.

education. If granted, this would waive the instructional hour requirements for students in the closed school(s). [10] Boards currently lack the authority, however, to require that instruction continue in individual schools that are closed, even when conditions might permit instruction to continue.[v] [w]

Recommendation 1.1

Recommendation 1.1

The General Assembly may wish to consider amending KRS 158.070 (9) to allow for continuation of learning for students in individual schools or other units that are closed for in-person instruction because of health or safety reasons on days when it is not necessary to close the entire district for those reasons.

Surrounding States Programs Similar To NTI Prior To The COVID-19 Pandemic

Staff did not review all 50 states, but prior to the COVID-19 pandemic, the use of alternative instructional delivery during school closures did not appear to be widespread.[x] This section of the report will provide background information on the programs from surrounding states relative to the NTI program in Kentucky as shown in Table 1.1.

Like Kentucky, other states build excess hours into their school calendars to ensure that instructional hour requirements are met.

Building in excess hours in official school calendars is another strategy used by Kentucky and other states to help ensure that students meet minimum instructional hour requirements. The neighboring states of Missouri, Ohio, Tennessee, and Virginia did not have NTI-like programs prior to the 2020 school year, but those states did allow districts to schedule excess days/hours that were built-in the annual proposed school calendars.

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[v] Conditions may commonly permit continued remote learning in the future if schools have 1:1 implementation of mobile instructional devices and students routinely transport these devices between home and school.

[w] Districts are permitted to require teachers and students in individual schools to complete makeup days that are not required of all schools in the district. More commonly, districts will accept that districtwide attendance is low and that attendance on days on which individual schools are closed will be automatically dropped as one of the five lowest attendance days as permitted by KRS 157.320(1).

[x] Staff found that programs similar to NTI did exist in Alabama, Massachusetts, and Pennsylvania prior to the 2020 school year. The programs in those states did require LEAs to develop and submit plans for approval to the SEA for those states.

In 2016, Illinois implemented e-learning days in lieu of emergency days.

Illinois. The use of e-learning days in lieu of emergency days was implemented in January 2016 in Illinois as part of HB 2781 (2015). Similar to Kentucky, local education agencies (LEAs) developed plans for using e-learning days and submitted those plans to the state education agency (SEA). The LEA plans were required to be presented at local school board meetings that would allow for public input to be considered. Programs were approved for 3 years.

Each of the e-learning days were required to equal 5 hours of instruction, and schools were responsible for tracking and monitoring student attendance on e-learning days. If a student was unable to access the online content, then an alternative assignment was provided.

In 2014, Indiana implemented a virtual option for use during school cancellations.

Indiana. A virtual option to be used during school cancelations was implemented during the 2014 school year in Indiana. The virtual option days were also authorized for use on make-up days, where virtual lessons were provided but school buildings remained open to accommodate students that required in-person services or for those that were unable to access the virtual option content.

The virtual option was recommended for Indiana public school districts that were already incorporating blended learning opportunities on a consistent basis.

Ohio implemented the "Blizzard Bag" program during the 2012 school year. The program used packet-based and online instructional methods for up to 3 days during a school year.

Ohio. The "Blizzard Bag" program was implemented in Ohio during the 2012 school year. The program utilized packet-based and online instructional methods for up to 3 days during a school year.

According to Ohio Revised Code (Section 33.13.482), prior to November 1st of the school year, teachers were responsible for creating the 3 days of lessons for each course taught. The students were given up to 2 weeks to complete the assignments for a "Blizzard Bag" day. Assignments that were not submitted resulted in a student absence for that "Blizzard Bag" day. Local education agencies were also eligible to apply for a waiver for up to 5 days for school cancelations that were called "Calamity Days."

Local education agencies were required to complete and submit application packets to the SEA to participate in the program. The LEAs were required to conduct annual reviews to examine the efficacy of the program in their districts.

West Virginia. The Non-Traditional instruction program was implemented during the 2017 school year through Title 126 Series

West Virginia implemented its non-traditional instruction program during the 2017 school year.

73 (2017). LEAs developed plans of action that were approved by the SEA. Instructional methods included online and packet-based options like Kentucky and other states.

Table 1.1
NTI Programs In Kentucky And Surrounding States
Prior To The Covid-19 Pandemic

State	Year Implemented	Available NTI Days	Plan Approval By SEA	Additional State Oversight
Illinois	2016	5	Yes	No
Indiana	2014	8*	Yes	No
Kentucky	2012	10	Yes	Yes
Missouri	N/A	N/A	N/A	N/A
Ohio	2012	3	Yes	No
Tennessee	N/A	N/A	N/A	N/A
Virginia	N/A	N/A	N/A	N/A
West Virginia	2017	5	Yes	No

*Indiana did not have an official limit on the number of eLearning days, but the SEA was notified if a district used more than 8 days in a school year.
Note: N/A = Not applicable.
Source: Staff compilation of information collected from state department of education web pages and from "The Impact of Nontraditional Instruction Programs and Technology Leadership on Student Achievement in Kentucky Schools." (2021).

[1] Hammons, Karen R. *Snow Day Learning: First Years of Kentucky's Non-Traditional Instruction Days.* Morehead State University, Unpublished dissertation. April, 2017.
[2] Fothergill, Sue, Director Of Strategic Programming, Attendance Works. "Re: New Submission from deborah.nelson@lrc.ky.gov" E-mail to Deborah Nelson. Sept. 15, 2021.
[3] 702 KAR 7:140 sec. 4(1)
[4] Kentucky Department of Education. "The Non-Traditional Instruction Program Guidance Document." March, 2020. Web. Accessed March 1, 2020, p.7.
[4] Ibid.
[5] Ibid, p.8.
[6] Kentucky Department of Education. "The Non-Traditional Instruction Program Guidance Document." March, 2020. Web. Accessed March 1, 2020, p.7.
[7] Kentucky Department of Education, Office of Finance and Operations. "Student Participation During The COVID-19 Pandemic." Presentation to the Interim Joint Committee on Education. June 1, 2021.
[8] Cook, David. Director of Innovation, Kentucky Department of Education. Interview. June 6, 2021.
[9] Jessica Carlton, Assistant Director, Division of District Support, Office Of Finance And Operations, Kentucky Department of Education. Interview. Oct. 12, 2021.
[10] 702 KAR 7:140 sec. 4 (3)

Chapter 2

NTI Implementation

This chapter describes implementation of the NTI program both before and during the COVID-19 pandemic. It begins by reporting numbers and characteristics of districts that participated in pre-COVID NTI and analyzing districts' use of weather days versus NTI days. The chapter then reports remote instruction rates during COVID-era NTI.

The chapter also includes an overview of districts' implementation of the NTI program focusing on instructional models and staffing. It describes changes in implementation between pre-COVID and COVID-era NTI.

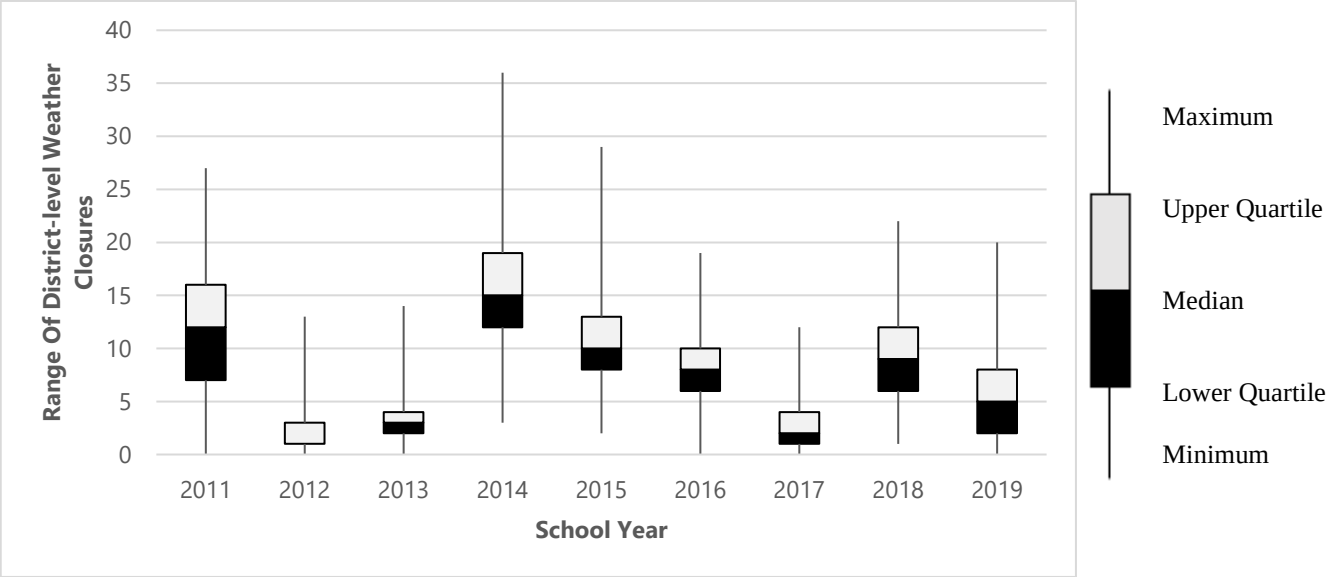
The chapter concludes with data showing evolution over time in technology to support remote instruction; it also reports differences among districts and between Kentucky and the nation in the percentage of students lacking home internet access.

Weather Days Affecting Kentucky Districts 2011-2019

The history of the NTI program in its early years is associated with weather patterns.

Figure 2.A shows the average number of days that Kentucky districts were closed for in-person instruction because of weather between 2011—the year prior to the beginning of the NTI program— and 2019, the year prior the COVID-19 pandemic. Days that districts were closed include those on which districts were closed entirely and those on which districts were closed for in-person instruction but instructing remotely through NTI. As described following the figure, the history of the NTI program in its early years is associated with weather patterns.

Figure 2.A
Median Number Of Days Kentucky Districts Were Closed Because Of Weather*, 2011- 2019



*Days closed for in-person instruction include weather days when schools were closed and NTI days when schools were closed for in-person instruction. These do not include district "disaster" days, which are relatively rare.
Source: Staff analysis of data from the Kentucky Department of Education

Relationship Between Weather Days And NTI Program

The General Assembly created the snow-bound pilot program following the high number of days schools were closed for weather in 2011. The General Assembly made the NTI program available to all districts in 2015.

NTI Program Created And Expanded In High-Weather Years. The General Assembly created the snow-bound pilot program following the high number of days schools were closed for weather in 2011; statewide, schools were closed an average of 12 days in that year, but averages were twice as high in many districts in eastern Kentucky. In 2014, districts were closed an average of 16 days for weather and the General Assembly made the NTI program available to all districts beginning in 2015.[a]

The General Assembly acted to relieve many districts of instructional hour requirements during the high-weather years of 2014, 2015, and 2016.

General Assembly Waiver Of Instructional Hour Requirements. As explained in Appendix D, during the high-weather years of 2014, 2015, and 2016, the General Assembly acted to relieve many districts of instructional hour requirements set out in KRS 158.070 (1)(f). This was done, in part, to avoid the necessity that districts extend school years beyond the first week of June to make up instructional days lost to weather.

[a] The three pilot districts—Leslie, Owsley, and Wolfe—had an average of 34 weather days each in that year.

Since 2016, the NTI program appears to have been effective at enabling districts to meet instructional hour requirements without extending school past the first week of June.

Since 2016, the NTI program appears to have been effective at enabling districts to meet instructional hour requirements without extending school past the first week of June. In the relatively high weather year of 2018, the General Assembly did not need to relieve any districts of instructional hour requirements.

NTI Cohorts And NTI Days Used Pre-COVID

Table 2.1 shows the number of districts that entered the NTI program by year and the average number of days from 2011 through 2019 that districts in each cohort were closed because of weather. Appendix E lists the districts in each cohort. Table 2.1 shows that districts from earlier NTI cohorts experienced, on average, a higher number of weather-related closures than did later cohorts or districts that did not enter the program.

Table 2.1
Average Days Of District Closures Due To Weather
NTI Cohorts, 2011 To 2019

NTI Cohort	District Count	Average Days Cohort Districts Closed
2012 Pilot	3	17.6
2015 Cohort	10	10.4
2016 Cohort	29	9.0
2017 Cohort	22	8.7
2018 Cohort	9	8.4
2019 Cohort	9	8.3
2020 Cohort	3*	14.7
No NTI	86	6.6
All Districts	171	7.9

* The table indicates districts that were admitted to the program at the beginning of the 2020 school year. By the end of that year, all districts had entered the program.
Note: Days that districts were closed because of weather include both weather days and NTI days. The table includes data only for the 171 districts existing in 2021.
Source: Staff analysis of data from the Kentucky Department of Education

NTI districts on average have higher rates of FRPL-eligible students, higher rates of students with IEPs, and lower rates of nonwhite students compared with non-NTI districts.

As shown in Appendix F, compared with non-NTI districts, NTI districts on average have higher rates of FRPL-eligible students, higher rates of students with IEPs, and lower rates of nonwhite students. Appendix F also provides a brief comparison of achievement metrics by level for NTI and non NTI.

Weather Closures By District

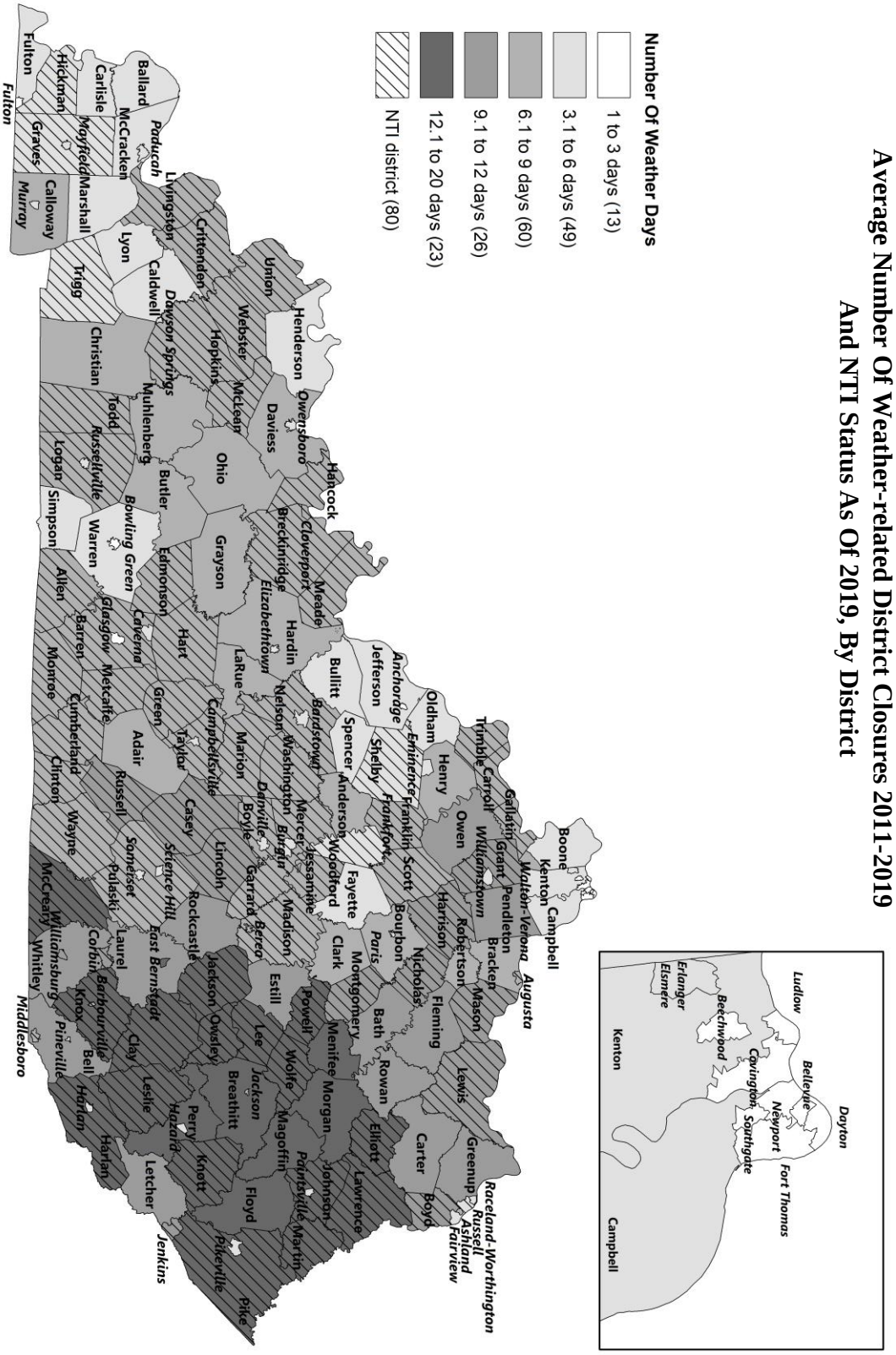
Figure 2.B shows the average number of days, by district, in which schools were closed because of weather (as indicated by either a weather day or NTI day) from 2011 to 2019. Data are shown from 2011—the year prior to the beginning of the NTI program— and

2019, the year prior the COVID-19 pandemic. Districts that had entered the program by 2019 are also indicated.

Districts in eastern Kentucky have the highest number of average weather days.

Districts in eastern Kentucky had the highest number of average weather days during this time period, with the exception of independent districts in eastern Kentucky. On average, independent districts take fewer weather days; these districts cover smaller geographic areas and typically have fewer students that need to be transported. As shown on the map, there are a number of high-weather districts in eastern Kentucky that had not entered the NTI program as of 2019.

Figure 2.B
Average Number Of Weather-related District Closures 2011-2019
And NTI Status As Of 2019, By District

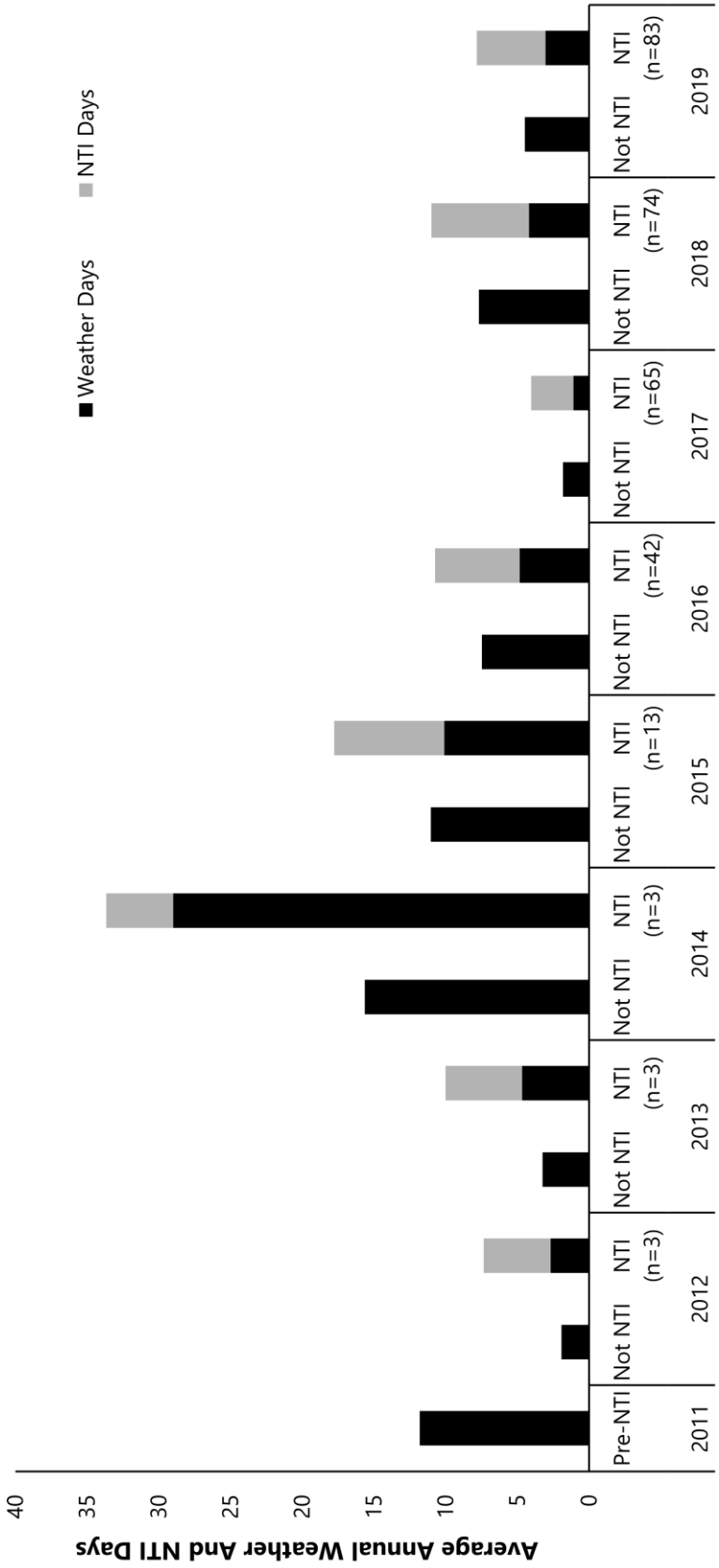


On average, NTI districts used 5.4 NTI days between 2012 and 2019. The average NTI district used a combination of weather and NTI days to address school closures because of weather.

Weather And NTI Days Used 2011-2019

On average, NTI districts used 5.4 NTI days between 2012 and 2019. Figure 2.C shows the average number of weather days used by NTI districts and non-NTI districts per year and the average number of NTI days used by NTI districts. The average NTI district did not use all of the 10 NTI days allowed in statute, instead using a combination of weather and NTI days to address school closures because of weather. The figure also shows that the NTI program allowed NTI districts to use, on average, fewer weather days than non NTI districts, though NTI districts typically had more days on which weather necessitated closing schools.

Figure 2.C
Average Annual Weather Or NTI Days
NTI and Non-NTI Districts
School Years 2011 To 2019



Comparison Groups - NTI vs. No NTI - School Years 2011 To 2019

Note: NTI= Nontraditional Instruction. KRS 158.079 permitted up to 10 NTI days beginning in 2012.
Source: Staff analysis of data from the Kentucky Department of Education

NTI Days And Remote Learning Rates COVID-Era

The NTI program was extended to all districts in March, 2020, to allow for remote instruction during the COVID-19 pandemic.

The NTI program was extended to all districts in March 2020 to allow them to provide remote instruction while schools were closed for in-person instruction during the COVID-19 pandemic. All 171 districts applied, and were eligible, for the program. Between March16, 2020, and March 29, 2021, districts were permitted to use an unlimited number of NTI days.

NTI Days 2020

From March 16, 2020 till the end of the 2020 school year, districts used an average of 37.5 NTI days.

From March 16, 2020 till the end of the 2020 school year, the average number of NTI days for all districts was approximately 37.5 days—more than one fifth of the school year. As shown in Appendix G, districts participating in the NTI program prior to the COVID-19 pandemic had a slightly higher number of days. [b]

Percentage Of Instructional Days Remote, 2021

In 2021, districts did not apply for individual NTI days. Remote learning in 2021 was available in a variety of ways, including "hybrid" learning days. Thus, remote learning rates for 2021 include a variety of remote learning options.

In 2021, districts did not report or apply for individual NTI days. Remote learning in 2021 could occur in a variety of ways—not just for closure and remote instruction for an entire district. In addition to the traditional NTI day, remote instruction could occur on a "hybrid" learning day in which some students were scheduled to be remote while others were scheduled to be in person; and on an instructional day when a student elected to remain in a remote learning mode even though in-person instruction was offered. Thus, remote learning rates reported for 2021 represent both days in which students were required to be in remote learning modes because of district-wide NTI or hybrid schedules as well as days in which families elected for students to be remote, even when in-person instruction was available.[c]

Remote Learning Data 2021

In 2021, KDE required districts to enter student-level participation data on NTI and other remote learning days into the state's student information system, Infinite Campus (IC). The data distinguished

[b] For example, 18 NTI districts from high-weather prone areas of the state used 6 or more NTI days prior to March, 2020.

[c] District-level data on the number of NTI days in 2021 are not available. Districts were not required in 2021 to individually apply for NTI day approval for each day used. Districts were instead asked to report to KDE the learning modes of each school in the district, by week, as 100% remote, 100% in person or a mixture of remote and in-person (hybrid). The number of days reported by districts to be in NTI mode (100% remote) ranged from about 15 to about 137. Accurate data for all districts on the number of NTI days are not available due to inconsistencies in the ways that districts interpreted the reporting options.

In 2021, KDE required districts to enter student-level participation data on NTI and other remote learning days into the state's student information system. The data distinguished attendance for both scheduled in-person and scheduled remote days.

daily between students scheduled to attend school in person and those that were scheduled to attend remotely.

To make collection of student-level data possible in 2021, KDE worked with IC to make use of available codes for reporting remote learning. The accelerated timeline for adoption of new coding options in IC for 2021 meant that districts were entering data even as instructional models were being developed. KDE staff worked with districts to ensure consistent use of participation codes.[d]

Kentucky is considered a national leader by the nonprofit Attendance Works for its collection of student-level participation data during the COVID-19 crisis.

Kentucky National Leader In Participation Data Collection 2021

By the 2021 school year, 31 states required districts to take daily attendance[1]. Only Hawaii and Kentucky required districts to enter remote attendance data into the state information system, however. According to the nonprofit Attendance Works, "Kentucky's system of gathering student attendance data is a model for the nation and certainly lends the opportunity to the state to quickly notice where there are problematic levels of absences whether students are learning remotely or in person."[2]

Remote Learning Rates By District

Statewide, students spent an average of 68 percent of instructional days in remote learning modes in 2021. Remote learning rates were higher, on average in higher- versus lower-poverty districts.

Statewide, students spent an average of 68 percent of instructional days in remote learning modes. As shown in Appendix H, remote learning rates were higher, on average, in higher-versus lower-poverty districts.

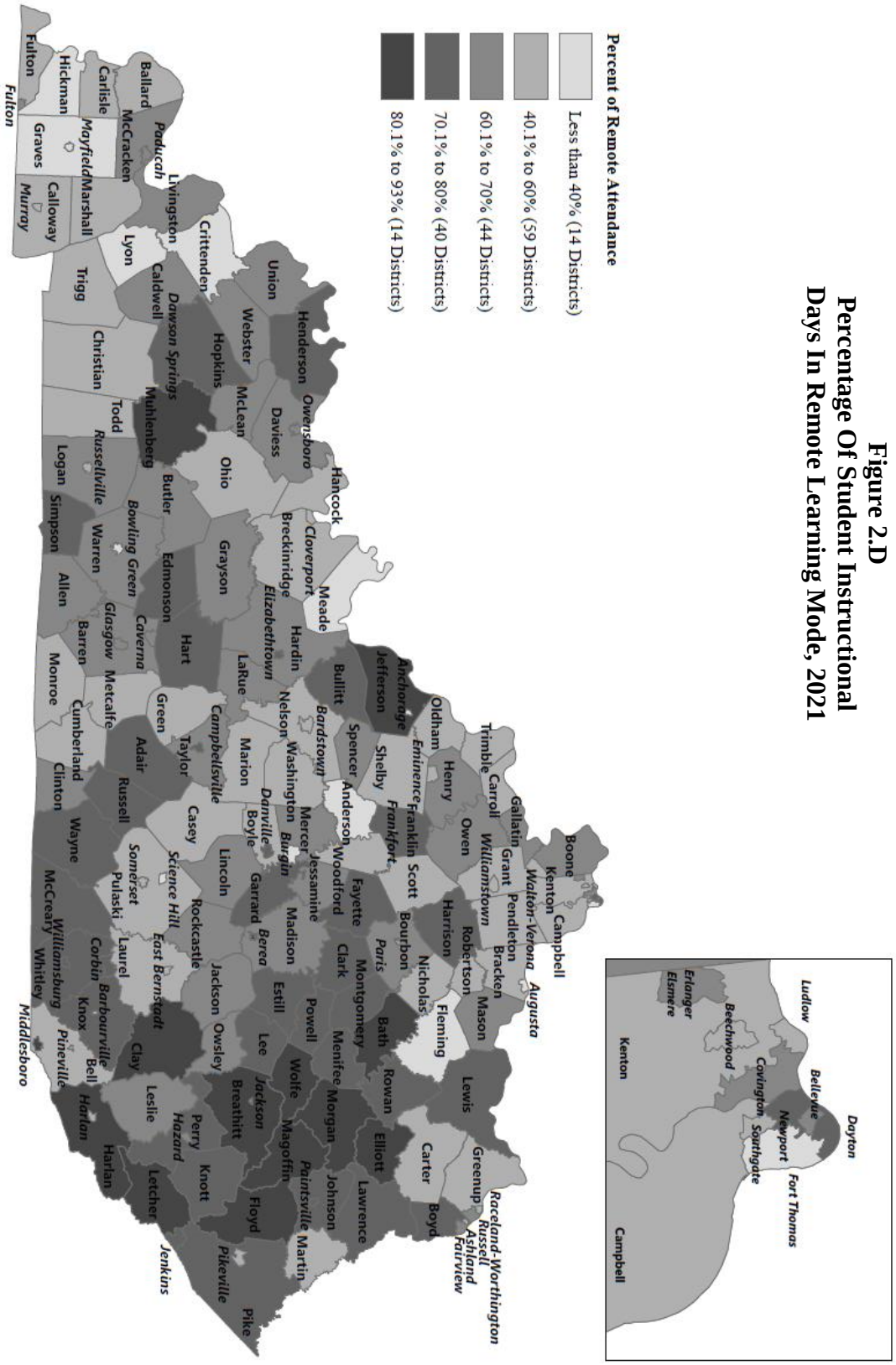
Figure 2.D shows average percentages of remote learning by district.[e] Fourteen districts had remote learning rates of less than 40 percent. On average, 53 percent of students were eligible for FRPL in those lower-remote districts. At the other extreme, 14 districts had remote learning rates greater than 80 percent. This group

[d] Due to the many different types of remote options implemented by districts in 2021, it is possible that data entry practices may have varied somewhat among districts, especially for students in hybrid learning modes. As a validity check of the participation data generated through IC, OEA staff compared remote participation rates generated through these data with school participation data submitted by districts to KDE and sought to verify through media reports data on districts with very high or very low remote participation rates. OEA communicated with DPPs in 4 districts in which school participation reports appeared inconsistent with student-level IC data and was able to verify the validity of IC data in all 4 districts.

[e] Within a district some students might have much higher or lower remote learning rates, depending on the schools in which they were enrolled or the instructional options chosen by their families.

included some rural and remote districts as well as the state's largest district, Jefferson County. On average, 74 percent of students were FRPL-eligible in those higher-remote districts. Regionally, remote rates were highest in eastern Kentucky.

Figure 2.D
Percentage Of Student Instructional Days In Remote Learning Mode, 2021


Percent of Remote Attendance
Less than 40% (14 Districts)
40.1% to 60% (59 Districts)
60.1% to 70% (44 Districts)
70.1% to 80% (40 Districts)
80.1% to 93% (14 Districts)
Boone
Kenton
Campbell
Gallatin
Grant
Pendleton
Bracken
Mason
Robertson
Harrison
Nicholas
Bourbon
Scott
Franklin
Owen
Henry
Trimble
Carroll
Oldham
Shelby
Anchorage
Jefferson
Spencer
Anderson
Woodford
Fayette
Clark
Bullitt
Meade
Hardin
Nelson
Washington
Mercer
Jessamine
Madison
Boyle
Marion
LaRue
Hancock
Breckinridge
Daviess
Henderson
Union
Webster
McLean
Ohio
Hopkins
Muhlenberg
Butler
Grayson
Edmonson
Hart
Green
Taylor
Adair
Russell
Casey
Pulaski
Somerset
Lincoln
Garrard
Estill
Lee
Owsley
Jackson
Breathitt
Perry
Knott
Leslie
Letcher
Harlan
Clay
Laurel
Rockcastle
Jackson
Wolfe
Magoffin
Floyd
Pike
Martin
Johnson
Lawrence
Elliott
Morgan
Menifee
Montgomery
Bath
Rowan
Powell
Madison
Estill
Lee
Jackson
Breathitt
Perry
Knott
Leslie
Letcher
Harlan
Clay
Laurel
Rockcastle
Jackson
Owsley

Remote Learning Rates By Student Characteristics

Variation in remote learning rates by student characteristics were associated primarily with district remote learning rates rather than differences in families' choices of in-person versus remote learning.

As shown in Appendix H, remote learning rates were greater for students in the upper versus lower grades. Remote learning rates also varied by student demographic characteristics—especially black and white students (80 percent and 66 percent, respectively), but variation was associated primarily with districts in which students were enrolled rather than differences in families' choices of in-person versus remote learning. For example, the higher remote learning rate for black students is explained by the fact that a disproportionate number of black students in Kentucky attend school in Jefferson County, which had the highest remote learning rate of all districts in the commonwealth.

In-Person Learning Opportunities, Kentucky And Nation, 2021

Kentucky was estimated to be in the bottom third of states nationally in the percent of instructional days that were scheduled in person.

As shown in Appendix I, Kentucky was estimated to be in the bottom third of states nationally in the percent of instructional days that were scheduled to be in person. Kentucky's in-person learning indicator was higher than surrounding states Virginia and Illinois and lower than surrounding states Ohio, West Virginia, Missouri Tennessee, and Indiana.

District Implementation: Pre-COVID NTI

This section summarizes implementation of the pre-COVID NTI program in the areas of instruction; staffing, and special populations. [f] The section that follows will summarize change in these areas during COVID-era NTI, and briefly address concerns about social and emotional effects of extended remote learning.

Instruction

Instruction during NTI has been provided through paper packets, projects, and through digital means, coordinated through learning management systems (LMSs)—web-based services that facilitate sharing of files and links between teachers and students

Districts use three main models to provide instruction on NTI days: paper packets consisting of lessons and worksheets; long-term projects (digital and physical);and digital learning using learning

[f] As explained in Chapter 1, due to the COVID-19 crisis, this report contains limited data from Kentucky educators. Staff conducted brief interviews with DPPs in four districts. In addition, only 13 complete NTI plans were available for analysis. These plans may not be representative of all 85 NTI districts at that time, but major conclusions from analysis of these plans have been confirmed with KDE program staff. This section uses the following descriptors in reference to analysis of those 13 plans. Almost all – 12 or more; Most = 7-11; Some= 3-6; Few = 1-2

management systems (LMSs), which are web services that facilitate sharing of files and links between teachers and students.[3] Prevalence among these models has shifted since the program was first implemented.

In the early years of NTI, instruction was provided primarily through paper packets but became increasingly digital over time.

Paper Packets. Prior to 2015, districts provided instruction primarily through paper packets. Although instruction became increasingly digital over time, use of paper packets remained widespread for elementary school students and for middle and high school students lacking home internet or device access. As of the beginning of the 2020 school year, few NTI districts used paper packets for the primary mode of instruction districtwide.

Middle And High School Increasingly Digital. As described later in this chapter, districts' capacities to instruct remotely using technology increased substantially from 2014—the year prior to widespread implementation—and 2021. Staff analysis of district NTI plans from 2017-2019 indicates that, by 2019, most districts used LMSs to provide instruction to middle and high school students, with a minority also using these systems at the upper elementary level. The most frequent LMS used is Google classroom. Through Google classroom or other LMSs teachers can create and post assignments; post grades; communicate with students; and provide links to lessons publicly available on the web. Most districts with LMSs also use some form of self-paced learning software with built in assessments.[g] While NTI plans reviewed for the pre-COVID era did not specify whether content covered would be new or review, KDE guidance recommended that new content not be introduced in most cases.[4]

Prior to the COVID-19 pandemic students lacking home internet access were accommodated primarily through paper packets. Some districts permitted students to check out mobile devices with preloaded content. To accommodate students lacking internet, districts permitted students to make up work when they returned to school.

Students Lacking Home Internet Access. KDE requires districts to describe in NTI plans how students lacking home internet access will be instructed. All districts provided paper packets to students lacking home connection. In addition, some provided ways for students lacking home access to learn digitally; for example, students in some districts were permitted to check out mobile devices with preloaded content. Districts also highlighted alternative locations that students might access the internet, such as public libraries or local businesses, and some opened school computer labs for use during NTI days for students that were able to access the school. To accommodate students with varying home

[g] Examples include Edmentum, PLATO, ISL, and STAR Reading and Math.

resources, all districts allowed students additional days after the NTI day(s) to turn in work.

Synchronous (face to face) instruction was not widespread prior to COVID-era NTI.

Synchronous Instruction Not Widespread. None of the district plans analyzed by staff prior to the COVID-19 pandemic included live (synchronous) instruction or interaction between teachers and students. Although synchronous instruction existed in some districts prior to the COVID-19 pandemic, it was not the norm in most classes.[5] NTI-related professional development focused on NTI rules and procedures; on use of Google Classroom; and on group planning through professional learning communities. Districts may have provided little training on synchronous instructional methods prior to the shutdown of schools during the COVID-19 pandemic.

Districts reported challenges ensuring that instruction had curricular relevance; was consistently rigorous and not "busy work"; and that students were not overloaded with work.

Instructional Challenges. Based on comments submitted by districts in the evaluation portions of their NTI reapplications, the following were common challenges associated with instruction: ensuring consistency in the rigor and amount of work assigned among classes and grades; ensuring that NTI had curricular relevance and was not "busy work"; and coordinating assignments among staff to ensure that students were not overloaded with work.

Special Populations. Classroom teachers were responsible for collaborating with special education teachers, gifted and talented teachers, and English learners (EL) teachers to plan appropriate instruction for special populations on NTI days. All districts required teachers to be available for students or families that needed assistance, but few required teachers to engage with students in real time or proactively reach out to students or families. [h] Data on the nature or quality of NTI for these populations were not available for this report and district NTI plans, including evaluations required of districts, do not indicate how well special populations were served on NTI days. Appendix J describes national concerns about shortcomings of remote instruction for special education and EL students.

Teachers were responsible for ensuring that instruction was adjusted for special populations.

In some cases, appropriate instruction was difficult or impossible to provide remotely. For example, interventions provided to students in the Read to Achieve program require that students interact with teachers.

Instruction for some student populations may be difficult or impossible to address well without synchronous instruction. As one example, small group interventions funded by the Read to

[hh] Only 2 of 13 NTI plans required special education teachers to do anything but be available on NTI days.

Achieve or Math Achievement Fund grant requires in-person or synchronous learning. .[6] [i]

Staff Responsibilities On NTI Days

Staffing duties specified on NTI plans varied by staff type.

Certified staff were generally required to work on site, if possible. Teachers were generally required to be available to assist students, upon request, but not required to instruct or proactively reach out to students.

Certified Staff Responsibilities. Based on NTI plans analyzed by OEA, it appears that most districts expected staff to work at the school site, if possible and some districts required certified staff to be at the school on NTI days. In districts that required staff to work on site, NTI days were only taken when the roads are safe for staff travel. A small minority of districts allowed teachers to choose whether to work remotely or in the school building.

Job duties for teachers generally required them to be available during school hours and to respond to students when contacted. Districts generally did not require proactive outreach of staff to students or any form of live, face-to-race remote interaction.

Well over half of NTI districts reported teacher participation rates of 100 percent. Nationally, teacher attendance rates are about 95 percent. The broad range of participation rates reported by NTI districts suggests that districts may have had differing expectations of teachers.

Teacher Participation Rates. Districts are required to report teacher participation rates to KDE prior to approval of ADA for each NTI day. Staff analysis show broad variation in teacher participation rates reported by districts. For example, as shown in Appendix K, teacher participation rates reported by districts to KDE in 2018 ranged from 74 to 100 percent. Well over one half of districts reported teacher participation rates of 100 percent.
As Kentucky districts are not required to report teacher attendance data, comparative data are not available.[j] [7]National estimates suggest that teacher attendance rates are typically about 95 percent.[8] The broad range of teacher participation data reported on NTI days and the high percentage of districts reporting 100 percent attendance suggest that, in comparison to each other on NTI days and to their own attendance rates on non NTI days, districts are using different standards of evidence to consider teachers as participating.

[i] Read to Achieve and Math Intervention Fund competitive grants assist districts in providing research-based interventions to small groups of students who struggle. As of 2017, 46 NTI districts were Read to Achieve grantees. Three NTI districts have been Math Achievement Fund grantees.
[j] Jefferson County reports teacher attendance rates. The teacher attendance rate for 2019—the last year available—was 95 percent.

Classified Staff Responsibilities. Most districts only permitted classified staff to work on NTI days if they worked on site and if supervisors identified duties that could be performed. Instructional assistants were generally expected to perform duties as requested by classroom teachers. Other classified staff might complete trainings or do maintenance work. Classified staff unable to work on site during NTI days or for whom work was not available were given opportunities to make up days later in the year to fulfil contract duties. For example, food service workers might work in summer food service programs. [k]

OEA is not aware of any concerns about negative social and emotional effects of remote learning during NTI as it is normally implemented.

Social And Emotional Well-being

Social and emotional concerns about remote instruction during COVID-era NTI are summarized in the next section. OEA is not aware of related concerns about the pre-COVID NTI program. Because of substantial differences in the duration and nature of NTI programs before and during the pandemic, it would not be expected that the mental health challenges documented during the pandemic would also apply to the NTI program as it is normally implemented.

COVID-Era NTI

Instruction

The closure of schools to in-person instruction for the last several months of the 2020 school year brought intense instructional challenges to all districts. Whereas instruction during NTI pre-COVID-19 could be review or extension of previously taught material, NTI during the extended closure of schools needed to introduce new content.

Early Evolution And Challenge. Instructional practices changed quickly in the first few months of COVID-era NTI. For example, one previously non-NTI district moved within weeks from a primarily paper packet model to increasing amounts of synchronous instruction as the district was able to provide devices

[k] Districts do not receive federal funds for food service workers on NTI day as federal rules require that food service staff work only on days when food is provided in community settings. To pay food service workers on the makeup days necessary to fulfil contracts, districts used general fund money, food service reserve funds, or raised additional funds through income generating programs such as "grab n go" or a la carte menus.

to students, assist families in connecting to Wi-Fi, and train teachers in remote learning techniques.[9]

Teachers and students reported frustration with remote learning following the 2020 school year.

Initial reports about instruction from the COVID-19 pandemic indicated frustration from both teachers and students at the level of engagement and learning during remote instruction. For example, a survey administered by the Prichard Committee for Academic Achievement in the summer of 2020 reported substantial drops in the percentages of teachers reporting of instruction before- and during the pandemic that it led to meaningful student learning (100 percent to 52 percent); that they felt confidence in teaching (98 percent to 57 percent); were motivated to teach (98 percent to 65 percent) and that workloads felt manageable (81 percent to 49 percent).[1] More than one quarter of teachers reported that they were considering leaving the profession because of the COVID-19 crisis.[10]

Teachers were provided more technical assistance in the 2021 school year.

Increasingly Sophisticated And Synchronous Models. Instruction evolved dramatically from the beginning of COVID-19 NTI through the end of the 2021 school year, however. KDE staff provided technical assistance with digital learning throughout the 2020 and 2021 school years. In addition, districts hired more digital learning coaches to provide local training and support. [11] Though most Kentucky teachers had not previously been trained to provide virtual instruction, many adapted their practices, making fuller use of LMSs; creating and uploading virtual lessons; posing class questions on message boards; video conferencing and connecting with students and families in real time.[12]

KDE provided guidance about how to adapt instruction for intervention teachers providing small-group interventions funded through the Read To Achieve and Math Achievement Funds. Interventions funded by these grants need to be provided in person or virtually to be recorded in program data, to be consistent with program requirements.

The overwhelming majority of students reported regular opportunities for synchronous instruction in 2021; percentages were highest at the elementary level and lowest at the high school level.

In the 2021 school year, most districts offered some form of synchronous instruction. Though the frequency of synchronous instruction throughout the week and school day are not known, Opportunity to Learn (OLS) survey data collected by KDE from students in 2021 and shown in Appendix L show that the overwhelming majority of students agreed that their teachers

[1] The survey was administered in August, 2020, after the spring 2020 semester of extended NTI and in the early weeks of the 2021 school year for some students.

taught synchronous lessons almost every day. Percentages of students reporting regular synchronous instruction were higher at the elementary versus middle and high school levels (94 percent, 88 percent, and 75 percent, respectively)[m]

A KDE participation data review in randomly selected classes showed the majority of students were participating digitally, but more frequently through LMSs than through synchronous instruction.

A participation review conducted by KDE in 30 randomly selected districts showed that about 11 percent of students were participating via paper-based assignments, with percentages highest in elementary schools (17 percent). About 79 percent were participating through electronic means, with percentages highest in middle schools (85 percent). KDE's analysis of the most common mode of participation indicated that the percentage participating through an LMS (62 percent) was almost twice as high as the percentage participating in whole class or group synchronous instruction (37 percent). [n]

Practices ranged among districts, from synchronous instruction in every class to instruction primarily through LMSs, with few teacher interactions over the course of a week.

Variation Among Districts. Staff conversations with directors of pupil personnel (DPPs) in several districts indicate that district practices for digital instruction ranged broadly; some required synchronous instruction in all classes whereas others relied primarily on LMSs to deliver instruction through assignments and instructional links; in these cases, a student might interact with a teacher rarely or never during the school week. Types of synchronous instruction also varied. While some districts required students to be present in front of cameras for entire class periods, others provided morning check ins and afternoon recaps, with teachers available to assist individual students in between. [13] KDE's review of participation data also indicated substantial variation

Perceptions Of Quality. National survey data indicate that, while students struggled to stay engaged in remote instruction throughout the 2021 school year, perceptions of remote instruction improved over time. In the spring of 2020, less than 40 percent of the over 150,000 students surveyed by the nonprofit YouthTruth said they learn a lot every day. By spring of 2021, percentages rose to pre-pandemic levels of 57 percent.[o] Negative comments about online

[m] Students agreed or strong agreed with the statement, "When my school building was closed because of COVID-19, my teacher taught lessons almost every day using video (Zoom, Microsoft Teams, Google meet/Classroom, or another program).
[n] 18 percent of records examined indicated that one-on-one contact between teacher and student or parent was the most common mode. Percentages do not sum to 100 due to aggregation of percentages from individual schools.
[o] Percentages of students reporting that they learned a lot in classes were similar for students with in-person, remote or in hybrid schedules.

learning focused especially on settings in which some students were "roomers" (in person) and some "zoomers" (remote).[14]

The overwhelming majority of Kentucky students reported that their schoolwork helped them learn in 2021; percentages were highest at the elementary level and lowest at the high school level. Students were less positive about NTI, though the majority of elementary and middle school students still reported that they felt good about what they learned during NTI.

Compared with national data, OLS survey data from Kentucky students appear more positive about learning that occurred in 2021. The percentage of students that agreed that their schoolwork helped them learn new things that year was 95 percent at the elementary level, 80 percent at the middle school level, and 62 percent at the high school level. [p] In addition, the overwhelming majority of students agreed that teachers were available when they needed help (92 percent of elementary school students, 88 percent of middle school students, and 84 percent of high school students.) Student perceptions of NTI were less positive however; the percentage of students who agreed that they felt good about what they learned during NTI was 86 percent at the elementary, 62 percent at the middle, and 45 percent at the high school levels.

Some practices put in place during COVID-era NTI provided more appropriate instruction than was available previously. For example, career and technical students had formerly used paper packets but acquired software to permit simulations and virtual field trips. Read to Achieve and Math Achievement Fund teachers adapted interventions for synchronous learning.

Special Populations. Anecdotal evidence described in Appendix J suggests that some practices put in place in 2021 provided more appropriate instruction for specific populations than what was provided in the past. For example: CTE centers had formerly relied primarily on paper packets for NTI but in 2021 acquired software and expertise to engage students with simulations, virtual field trips, and hands-on remote instruction kits. Special education teachers engaged synchronously with students and reported successful outcomes, especially for students with social anxieties. KDE staff guided teachers providing interventions through Read to Achieve and Math Achievement Fund to adapt instruction for synchronous remote learning.[15]

Teachers' roles shifted substantially from NTI pre-COVID to COVID-era NTI.

Staffing During COVID-Era NTI

According to KDE staff, most districts provided some form of synchronous instruction in 2021. [16] Thus, teachers' roles would have shifted substantially from their roles in pre-COVID NTI when teachers were required to be available for assistance but were not required to provide instruction.

[p] There is a weak negative correlation (-0.2120) between the percentage of school instructional days that were remote in 2021 and the percentage of students in that school who agreed with the statement "my schoolwork helped me learn new things this year."

Some districts reported using all available staff to reach out to families of nonparticipating students, making use of systematic data from IC. In addition, staff reached out proactively to families of students with specialized needs such as IEP or EL students. OEA analysis of pre-COVID NTI plans suggest that proactive outreach by district and school staff was not standard practice.

Data available for this report were insufficient to systematically describe staff roles in either Pre-COVID or COVID-era NTI. KDE did not require districts to report teacher participation rates in COVID-era NTI.

Social And Emotional Well Being

Educators and policymakers have expressed concerns about the increase in mental health challenges associated with remote learning in 2021.

Educators and policymakers have expressed concerns about the increase in student mental health challenges associated with extended remote learning in 2021. While student anxiety, depression and suicidal ideation were preexisting concerns, remote learning may have exacerbated these conditions by removing students from close contact with peers and teachers and increasing the predominance of social media in students' social interactions.[17] According to a U.S. Centers for Disease Control and Prevention report, the proportion of children visiting emergency departments nationally because of a mental health crisis increased dramatically. From April through October of last year, the proportion of children between the ages of 5 and 11 visiting an emergency department because of a mental health crisis climbed 24 percent compared to that same time period in 2019. Among 12- to 17-year-olds, the number increased by 31 percent.

National research suggests that 30 to 40 percent of young people experienced mental health challenges during the pandemic.

A review of national research suggests that challenges varied among students based on whether they experienced illness or loss; what percentage of the year they were remote; and by gender and race. A review of research by the Center on Reinventing Public Education concluded that 30 to 40 percent of young people experienced negative mental health or social-emotional health effects during the pandemic. Rates of anxiety and attempted suicides increased. Negative mental health effects of the pandemic were more likely among students who learned remotely for long periods. There have also been some positive reports of remote learning on social emotional well -being for some students to the extent that it increased students' self-direction and time management skills, but systematic research is lacking. [18]

Access to mental health practitioners vary among districts; some report extreme staff shortages.

Social and emotional effects of remote learning may also have varied based on districts' access to mental health practitioners.

Some districts report extreme shortages in current staff and labor market pipelines to assist with increasing numbers of students and staff in distress.[19] Jefferson County invested $3 million in 2019 to ensure that every student would have access to a mental health counselor. [20]

Negative social and emotional effects of the COVID-19 pandemic, including challenges associated with remote learning, have also been reported for teachers. OEA has no evidence of negative social and emotional effects of remote learning on teachers as it is normally implemented on NTI days.

Stresses related to schooling during the COVID-19 pandemic, including those related to remote learning, also had social and emotional effects on teachers. In an early 2021 survey by *Education Week*, 85 percent of teachers reported that overall teacher morale at their schools was lower than before the pandemic. [21] . A late 2020 survey showed that rates of depression and job-related stress among teachers had approximately doubled since before the pandemic. [22] As noted above for students, OEA is not aware of any evidence suggesting negative social and emotional effects of remote learning on teachers as it is implemented normally during NTI.

Minimum Expectations For Instruction

Descriptions of NTI instructional and staffing models above suggest:

- variation among districts in students' access to synchronous instruction;
- likely variation among districts in expectations for teachers; and
- shifts in staffing roles during COVID-era NTI compared with pre-COVID NTI, with increased expectations for synchronous instruction or engagement by teachers and for proactive outreach to families by teachers and other staff.

Best practices regarding synchronous instruction generally and during short-term learning in particular are not yet known. Some experts urge caution in assuming that the quality of remote learning can be measured in synchronous instructional time. Synchronous instruction, may, however be especially important for some students. In addition, parents place high value on opportunities for synchronous engagement or instruction.

Best practices concerning the percent of instructional time that should be spent in synchronous instruction and the type of synchronous instruction that is most effective are not yet known; some experts urge caution in the assumption that the quality of remote learning can be measured in synchronous learning time.[23] Further, the amount of synchronous instructional time that is ideal during extended remote learning may be different from what is necessary or ideal in the shorter-term remote learning that normally occurs in the NTI program. As noted earlier, however, it may be especially valuable for some students. In addition, parents surveyed by the Prichard Committee for Academic Achievement in summer of 2020 expressed a strong preference for synchronous engagement, though not necessarily in group instruction; they identified the top three factors in effective remote learning to be

personalized guidance (78 percent), options for virtual tutoring (64 percent) and parent meetings (54 percent).[24]

Given that synchronous instruction was not expected of teachers in NTI pre-COVID; that it varied among districts during COVID-era NTI; and that it may provide more appropriate instruction for some students than was previously available, it will be helpful for KDE to clarify minimum expectations for synchronous instruction on NTI days.

Given that synchronous instruction and engagement was not normally expected of teachers in NTI pre-COVID; that it may provide more appropriate instruction for some students than is available without it; and that expectations vary among districts, it will be helpful for KDE to clarify expectations regarding synchronous instruction. The precise mix of instructional models that work for specific types of students during remote instruction may not be known in the immediate future, but research and examples from other states may provide guidance.[q] [25]

Recommendation 2.1

Recommendation 2.1

The Kentucky Department of Education should consider establishing, through guidance, minimum requirements for synchronous instruction or engagement that must be offered to students on nontraditional instruction days.

Kentucky Department of Education Implementation Of NTI Oversight

Pre-COVID KDE Oversight

As described in Chapter 1, KDE oversight of NTI programs can occur during approval of NTI plans; approval if individual NTI days; and district audits.

KDE considers reporting requirements to provide greater accountability for districts than NTI plan approval.

NTI Plans. KDE staff review NTI plans submitted by districts to ensure that they contain required elements. KDE acknowledges differences among districts in the degree of implementation indicated by NTI plans but does not evaluate district plans based on the quality of the plan submitted; KDE considers the reporting requirement of districts for each NTI as the primary point of accountability. [26]

KDE has on occasion delayed approval of NTI days but has never denied them based on the nature or quality of evidence submitted.

Evaluation Of District Evidence Of Continued Student Learning On NTI Days. KDE has granted approval of ADA for NTI days as long as districts submit required documentation. While districts are only required to submit a single document per

[q] For example, in 2021 guidance, Colorado specifically ruled out certain practices in isolation. These included: use of LMSs; practice apps; or prerecorded videos exclusively for instruction, even if teachers were available, upon request.

grade level, some have delivered comprehensive binders to KDE. As described in Chapter 1, KDE has indicated to districts that approval of NTI days may not be granted if student or teacher participation rates are too low, though that threshold has not been defined. KDE has on occasion delayed granting of NTI due to lack of evidence but has not denied NTI days based on the nature or quality of evidence submitted. [27]

In annual NTI audits, KDE staff review documentation, interview educators and parents, and review school work.

KDE Audits. KDE program staff typically conduct five to six district site visits annually in randomly chosen districts; because of weather, these visits are not conducted in real time but at the end of the year. Audit teams review required documents; interview teachers, administrators, and parents; and review school work. [28]

KDE has observed variation in the implementation of the NTI program among districts, but no district has ever been denied NTI participation based on quality of evidence examined in audits. [29]

Based on data gathered from audits and other communications with NTI districts, KDE has assembled several sources of guidance on NTI best practice. [30]

COVID-Era KDE Oversight

NTI Plans. All 171 districts applied for and were approved to participate in the NTI program from March of 2020 through the end of the 2020 school year. All 171 districts submitted new applications for the 2021 and again for the 2022 school years and were approved to participate.

In 2021 KDE suspended the requirement that districts apply individually for NTI days.

Evaluation Of District Evidence Of Continued Student Learning On NTI Days. During COVID-era NTI, KDE did not require districts to submit documentation for each NTI day used. From March 16th, 2020 through the end of the school year, districts were required to submit weekly aggregate student participation data. In 2021, districts were required to enter student participation daily. In addition, districts were required to indicate to KDE instructional models used (in-person, hybrid, or remote) for each school in the district, by week.

KDE did not conduct audits in 2021; instead it reviewed participation data in 30 randomly chosen districts.

District Audits. KDE did not conduct audits in 2020 or 2021. As described earlier in this chapter, however, KDE did conduct a review of participation data for one school at each level in 30 randomly chosen districts. The review examined documentation to support participation rates based on specific modes of participation.

District Oversight Of Pre-COVID NTI Programs

Data in this section relate to Pre-COVID district oversight of NTI programs. No data were available for this report on district implementation of oversight during COVID-era NTI.

District oversight of NTI programs pre-COVID appears to have varied broadly.

Staff analysis of NTI plans and NTI reapplications submitted by districts to KDE indicate broad variation in the degree of internal oversight among districts. Most districts indicated that teachers should plan and review lesson plans in professional learning community (PLC) meetings or submit plans to supervisors in advance of NTI. Some districts reported formal review of NTI assignments. In cases of formal review, a committee or instructional leadership team conducted random audits of NTI work assigned.

District Evaluation Of NTI

A minority of districts appear to conduct formal evaluations or surveys.

As described in Chapter 1, districts were formerly required by KDE to reflect on the effectiveness of their NTI programs when reapplying each year for the program. Staff review of reapplications from NTI districts indicates broad variation in the degree of self-evaluation, from few or no comments about program quality to one extensive review based on survey data. Research previously conducted on NTI districts also indicated variety among districts in oversight and a small minority of districts conducting surveys. [31r]

As noted in Chapter 1, KRS 158.070(10) requires KBE to determine, through regulation, evaluative procedures required of the district. Although evaluation was formerly required by KDE in the NTI reapplication process, KDE has not yet specified districts' evaluation responsibilities in submission of NTI plans through CDIPs.

Recommendation 2.2

Recommendation 2.2

The Kentucky Department of Education should consider including evaluation requirements for nontraditional instruction (NTI) districts in annual submission of NTI plans that are contained in Comprehensive District Improvement Plans.

[r] Only 7 out of 57 districts surveyed mentioned a survey as part of the evaluation process.

District Technological Capacity To Support NTI

Districts' technological capacities to provide remote instruction have increased through acquisition of mobile devices and learning management systems.

While remote instruction with NTI began primarily with paper packets and project assignments, districts have become increasingly capable of providing remote instruction electronically. As shown in Table 2.2, districts' technological capacities have increased substantially since 2014, the year prior to widespread implementation of the NTI program. The table shows increases over time in the numbers of district-owned devices per students and percentages of all district devices that are mobile. The table also shows increases in the percentages of districts implementing 1:1 instructional device to student initiatives and districts using LMSs that connect students electronically with their classroom teachers, assignments, and digital content.

Staff analysis indicates that, as of the 2020 school year, NTI and non NTI districts had similar rates of technological readiness based on the metrics in the table.

Table 2.2
Indicators Of District Capacity For Remote Instruction
2014, 2020, 2021

	2014	2020	2021
Ratio district-owned instructional devices to students	0.4	1.1	1.3
Percentage district-owned devices that are mobile	26%	67%	74%
Percentage districts with district-wide 1:1 initiative	N/A	15%	40%
Percentage districts with learning management system	70%*	86%	95%

*as of 2015. LMS data was not available in 2014.
Note: The Kentucky Department of Education reports ratio of students to district owned devices rather than ratio of devices to students. During the pandemic, reflect a combination of mobile devices purchased for students and existing, immobile desktop computers.
Source: Staff analysis of data from the Kentucky Department of Education.

Variation Among Districts

Prior to the COVID-19 pandemic, districts' technological capacity to support remote instruction varied substantially. In 2020, for example, the ratio of devices per student ranged from a low of 0.3 per student to 2.5 in individual districts. Statewide, about two thirds of district-owned devices were mobile, but percentages of devices that were mobile ranged broadly, from less than 10 percent of all district-owned devices (7 districts) to over 90 percent (4 districts).

Learning management systems are increasingly capable of capturing student interaction and work completion and linking with student information systems. They provide an important source of evidence that student learning continues on NTI days.

Capacities such as high-speed internet and cloud-based systems provided critical base supports for the NTI program.

Potential Of Learning Management Systems To Show Evidence Of Continued Student Learning

In addition to their primary function in supporting instruction, LMSs can also play a critical role in documenting it. Systems are increasingly capable of capturing student interaction and work completion and linking automatically with state student information systems. Thus, LMSs can capture evidence of students' continued learning without imposing additional documentation burdens on classroom teachers.[32] As such, they can play an important role in storing information to support requirements for district reports of continued learning as described in KRS 158.070(10)(b).

School Building Capacity

System capacities inside school buildings provided critical base supports for the NTI program, before and during the COVID-19 pandemic. Since 2015, all Kentucky schools have been connected to the internet with high-speed fiber capable of downloading and uploading at high speeds. Cloud-based systems such as student and staff emails (since 2010); MUNIS financial software (2013); Infinite Campus, the state student information system; and PBS Learning Media also facilitate remote working and learning. [33]

Student Home Internet And Device Access

Lack of student home internet and device access have been an enduring challenge.

Since the inception of the NTI program and continuing through the beginning of the COVID-19 pandemic, students' lack of home internet access presented barriers to remote instruction for a substantial minority of students. As shown in Table 2.3, the percentage of students that districts reported as having home internet access has increased steadily over time, from 72 percent in 2011 to 84 percent in 2020.

The table also shows changes over time in the way that districts have been asked to report the data. Beginning in 2015, KDE asked districts to report access using a measure of internet quality—internet capable of having a good experience watching a YouTube video. KDE also requested that districts collect home internet access data systematically and began distinguishing between data from districts that report systematic means of data collection and those that are estimating. As of 2020, 72 out of 171 districts (over 40 percent) were estimating student home internet connection rather than collecting comprehensive and systematic data.

Table 2.3
Home Internet Access Data
2011-2021

Year	Measure of Access	Percent Of Students Statewide	Districts Reporting Meaningful Or Intentional Data Collection	
			Yes	No
2011	Percent of students that have internet access at home	72	N/A	N/A
2014	Percent of students that have internet access at home	77	N/A	N/A
2015	Percent of students that have Internet access at home capable of having a good experience watching a YouTube video	75	94	81
2020	Percent of students have Internet access at home capable of having a good experience watching a YouTube video	84	99	72

Notes: Data from 2011-2014 are reported from KDE's annual digital readiness summary reports. Data for 2015 and 2020 are staff calculations of weighted averages using district-level data reported on digital readiness reports. Staff included data from the state's current districts that reported systematic data collection as well as those that provided estimates. On average, districts that collect data systematically report slightly higher rates of home connection than districts that estimate.
Source: Staff analysis of data from the Kentucky Department of Education

Student home internet access has always ranged broadly among districts, however, and substantial disparities still existed as of March, 2020, when districts were faced with the necessity of providing remote education through the remainder of the school year.

Heading into the COVID-19 pandemic, student home internet access varied broadly among districts, including NTI districts. Access was lowest in the Southeast and South Central regions.

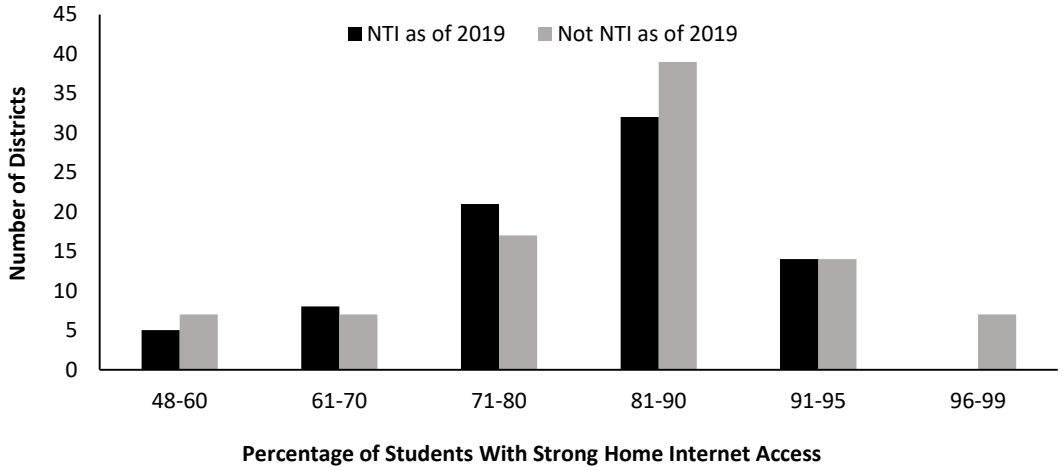
Regional Variation In Student Home Internet Access, Fall 2020

Percentages of student home internet access ranged broadly by district from a low of 50 percent or less in 5 districts to a high of 98 percent or above in 4 districts. [s] The Kentucky region with the lowest percentages of students with strong home internet access was the Southeast/South Central Region (average of 79 percent). Appendix M shows a geographic map of student home internet access as reported by districts to KDE in 2020, the last year of data available. Appendix M also shows that, on average, home internet access was higher in lowest- versus highest-poverty districts (91 percent versus 80 percent, respectively). [t]

[s] As of fall 2020, districts in which 50 percent or less of students had strong home internet access were Powell County, Nicholas County, Robertson County, and Pineville Independent. Districts reporting 98 percent or more of students with strong internet access were Fort Thomas Independent, Beechwood Independent, Fulton Independent, and Anchorage Independent.
[t] In spring 2020 the KDE family/caregiver needs-sensing survey collected data from a sample of parents and caregivers, but the survey did not include representative samples from Kentucky districts. That survey indicated that 87% of families had internet access at home and 97% of families had access to the

Figure 2.E shows the number of pre-COVID NTI districts that fell into various ranges of student home internet access. The overwhelming majority of districts reported that 10 percent or more of students lacked access. Of those, 5 NTI districts reported 60 percent or less of students with access. The seven districts with highest percentages of students with strong home internet access (96 to 99 percent) were not NTI districts.

Figure 2.E
Number Of Districts
By Percentage Of Students With Strong Home Internet Access
Fall, 2020



Source: Staff analysis of data from the Kentucky Department of Education

District Support Of Student Home Access COVID-Era NTI

Staff analysis of NTI plans prior to the COVID-19 pandemic indicates that districts did not routinely assist in providing home internet access to students who lacked it.[u] Instead, districts noted locations, such as the public library or businesses, where Wi-Fi might be available. Some districts also preloaded digital content on to instructional devices or student checkout.

internet for school work at some location outside of the school. A November, 2020 teacher and family survey by the Prichard Committee for Academic Achievement indicated that 88% of families had internet access at home.

[u] Staff analysis of NTI plans indicated that few districts took additional steps such as providing local internet hotspots or assisting families to negotiate affordable contracts with local providers.

With the necessity of providing extended periods of remote instruction during the end of 2020 and in 2021, districts in Kentucky and the nation began focusing more systematically on increasing students' access to the internet at home or other locations outside of school buildings and ensuring that students had home use of instructional devices.[v] [34]

Districts used federal dollars to purchase over 194,000 mobile devices, primarily Chromebooks, in 2021.

Mobile Devices. In spring, 2020, districts used federal dollars to increase their purchases of mobile devices for student home use. As of fall 2021, districts had purchased collectively 194,000 devices almost one for ever 3rd Kentucky student. The majority of devices purchases in 2020 were Chromebooks; by 2021 Chromebooks comprised 63% of all district-owned devices.[w]

OLS survey data indicate that over 70 percent of Kentucky students agreed that it was easy to use devices such as computers, Chromebooks, or smartphones to complete schoolwork at home. A slightly higher percentage of elementary school students reported ease of device use for schoolwork compared with middle and high school students (77 percent, 72 percent, and 70 percent, respectively.)

Districts also used federal dollars to assist students lacking home internet access.

Internet Access. Kentucky districts also used federal dollars to provide internet connection to students lacking home access. They did this through the purchase of internet hotspot and Wi-Fi devices; by increasing the range of school Wi-Fi access to include parking lots; and in some cases, by partnering with local providers to help families cover the cost of home internet access. According to KDE, the cost of internet access presents a bigger barrier in many areas of the state than does the infrastructure to support that access. Federal assistance is available to eligible families to cover some of the costs.[35] [x]

OLS survey data indicate that the overwhelming majority of students were able to work with teachers and classmates online,

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[v] National survey data from district education technology leaders indicates that almost all (95 percent) of districts were making efforts to expand broadband access outside of school in 2021, compared with about half of districts (51 percent) in 2020.

[w] Chromebooks are low-cost laptop alternatives that run on Google operating systems.

[x] The federal Lifeline program, which preceded the COVID-19 crisis, provides assists low-income families with the cost of phone services, including broadband. In 2021, the Federal Communication Commission's Emergency Broadband Benefit provides discounts of up to $50 per month towards broadband service for eligible households.

with percentages being higher for elementary versus middle and high school students (90 percent, 81 percent, and 78 percent, respectively).

Student Internet Access Beyond School Campus, 2021

KDE partnered with districts in 2021 to collect monthly data on student access to devices and to the internet outside the school campus. Ninety-eight percent of students had access to some type of device (including cell phone) and 98 percent had access to the internet at some location outside the school campus.

In 2021 KDE was one of a select group of states nationally to partner with districts to gather monthly data on student internet and device access using software from the BrightBytes data and analytics company. These data indicated that 98 percent of students had access to some type of device (this could include cell phones) that could connect to the internet and 98 percent had the ability to connect to the internet for school work at some location beyond the school campus. Student internet access as reported by KDE in 2021 is not comparable, however, to student internet access reported in previous years; the 2021 data reports about internet access at any place (such as a local business, or relative's home) whereas previous data reported student home access.

Internet access at some place beyond the school campus in 2021 ranged from a low of 52 percent in Robertson County to a high of 100 percent (reported in 66 districts). Percentages of students reported by districts to have access anywhere outside the school campus did not vary as much by student poverty as does home internet access. On average, 97.5 percent of students were reported as having some internet access in the state's 30 highest-poverty districts (76 percent and above eligible for FRPL) compared with 100 percent in the 4 lowest poverty districts (25 percent and below eligible for FRPL).

Student Home Device and Internet Access, Kentucky And Nation, 2021

Table 2.4 shows US Census survey data on home internet and device access taken periodically throughout the 2021 school year from a sample of families with children 18 years or younger in Kentucky and the nation. These data, which include families with children in public and private schools, are the only systematically collected on student home internet access in 2021.

Student home internet and device access increased through the 2021 school year for both Kentucky and the nation and then dropped in July 2021 at the conclusion of the school year. Whereas the percent of Kentucky families reporting that the internet was always or usually available was 9 percentage points lower than the nation's in May of 2020 (80 percent in Kentucky versus 89 percent

in the nation), it was within one percentage points of the nation in October, 2020 (91 percent in Kentucky versus 92 percent in the nation). Gaps between Kentucky and the nation in home device access also decreased during the 2021 school year. The percent of Kentucky families reporting that an instructional device was always or usually available was 9 percentage points lower than the nation's in May of 2020 (78 percent in Kentucky versus 87 percent in the nation), but it was within two percentage points of the nation in October, 2020 (90 percent in Kentucky versus 92 percent in the nation).

Table 2.4
US Census Household Pulse Survey Data
Percent Of Households With Children Under 18
Reporting Internet Or Devices Are Always Or Usually Available
In The Home For Educational Purposes
Kentucky And Nation
2020 And 2021

	Percent Reporting Internet Always Or Usually Available		Percent Reporting Instructional Device Always Or Usually Available	
Month, Year	**US**	**KY**	**US**	**KY**
May, 2020	89	80	87	78
October, 2020	92	91	92	90
May, 2021	94	88	94	88
July, 2021	91	84	91	84

Note: Data reported in the table represent answers of families with children in both private and public schools.
Source: Staff analysis of data from the US Census Household Pulse Survey.

Technical support staff are needed to assist students and families with home internet access.

Challenges Beyond Internet Access Alone

National data suggest challenges beyond connectivity alone in ensuring equal home internet access to all students. For example, most districts were not prepared to provide technical support to families and students that was necessary in maintaining and establishing connection. This support might include basic information such as password access and internet safety as well as technical assistance in maintaining devices. Also, internet connection for some students were often too slow to support multiple users or video conferencing [36]

Systematic and Comparable Statewide Data On Home Internet And Device Access

For over a decade, KDE has required districts to report home internet access data for publication in the department's Digital Readiness Report. While all 171 districts have been reporting these data, many (more than 40 percent in 2020) were reporting based on estimates. In addition, the wording of questions among different survey instruments can convey varying impressions from the same population of respondents.

Home internet access data are critical to identify students' instruction needs in NTI districts and throughout the year. Research has documented a "homework gap" for students lacking access. Home access might also provide flexible options to support academically struggling students.

Home internet access data are critical to identify students' instructional needs in NTI districts and are also important for all districts throughout the year. Research has documented a "homework gap" that exists when students lacking internet access are unable to participate fully in assignments that are increasingly posted online and require online resources. [37] Home access also provides potential in the future for districts to support academically struggling students with learning resources or tutoring and to offer flexible learning options through virtual courses and online content. [38]

It is important that student access data be comparable among districts and be available not only to districts but to policymakers seeking to address home access gaps. The data should be valid for determining equitable access to home internet and instructional devices.

In 2022, KDE began requiring districts to use systematic methods to collect student home access data.

In the 2022 school year, KDE began requiring districts systematically to collect student home internet access data and to identify data collections methods.[39]

Recommendation 2.3

Recommendation 2.3

The Kentucky Department of Education (KDE) should continue to require districts to collect and record student-level data on student home internet and instructional device access using a standardized instrument recommended by KDE.

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Chapter 3

Student Participation And Academic Outcomes

This chapter examines student participation and academic achievement data for students in NTI districts between 2015 and 2018 and for all students who learned remotely in 2020 and 2021.

The chapter's analysis of participation data suggests differences in the standards used by different districts and schools to indicate that students are participating. It also raises concerns that some students—especially students in early grades, students in higher-poverty schools, and black or Hispanic students—may disengage at higher rates than all students during extended remote learning.

The analysis of student outcomes presented in this chapter shows contrasting results for the NTI program as normally implemented and the NTI program as it was implemented in 2020 and 2021. Under normal conditions, when districts can spend a maximum of about 6 percent of instructional days in remote instruction, there is little or no association between the number of NTI days used and student achievement on state standardized tests. In contrast, student achievement and grades dropped substantially in 2021, when the average student spent 68 percent of instructional year in remote learning.

The degree to which changes in student academic outcomes and chronic absences in 2021 were associated with remote instruction compared with other challenges facing students, schools and families in that year is not yet clear.

Pre-COVID NTI Participation Rates

District-level 2018 Participation Rates And Attendance Rates

During pre-COVID NTI, KDE required districts to report aggregate participation rates. No school- or student-level NTI participation data are available for pre-COVID NTI.

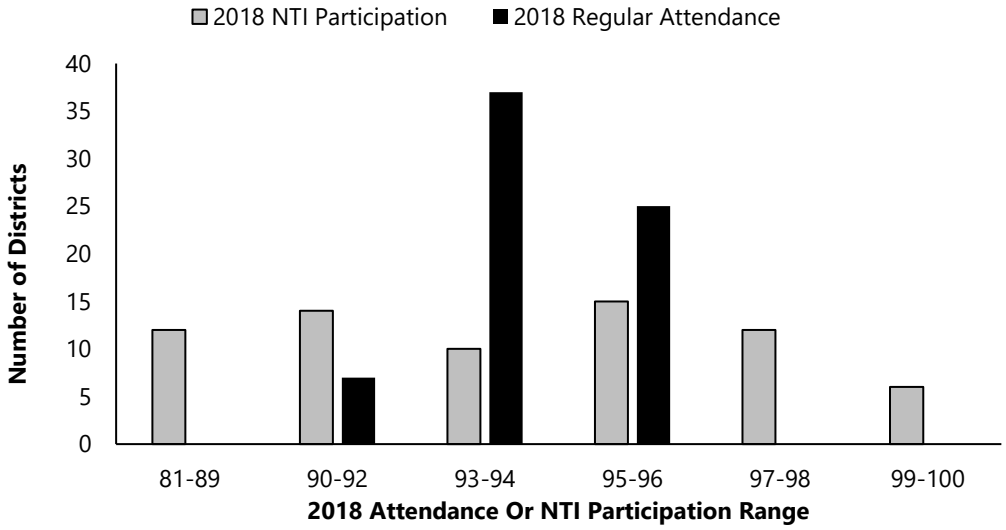
Figure 3.A compares the number of districts falling in various ranges of NTI participation rates during 2018 with the number of districts falling in those ranges for regular attendance in 2018.[a]

[a] Participation rates for 2018 were analyzed because, as shown in Chapter 2, 2018 was a high-weather year with greater numbers of NTI days than 2019

Average district participation rates on NTI days in 2018 were similar to average district attendance rates in that year, but the lower and upper ranges for NTI participation were much broader than for regular attendance.

While average NTI district participation rates reported to KDE in 2018 were very similar to average district attendance rates (93 percent and 94 percent, respectively), Figure 3.A shows that the lower and upper ranges for NTI participation were much broader than for regular attendance; a much higher number of NTI districts fell in the lower and upper ranges of participation data than in those ranges for regular attendance data. In 2018, no NTI districts had attendance rates greater than 96 percent, but a total of 18 districts had participation rates greater than 96 percent. While no NTI districts had attendance rates lower than 90 percent, 12 had participation rates lower than 90 percent.

Figure 3.A
Number Of Districts By Range Of
NTI Participation Rate And In-person Attendance Rate, 2018



Source: Staff analysis of data from the Kentucky Department of Education

COVID-Era NTI Participation Rates

Participation Data Standards

KDE guidance required that participation data in 2021 be based on one of four forms of evidence collected at least once per day.

KDE guidance required that participation data in 2021 be based on one of four forms collected at least once per day.[b] These forms

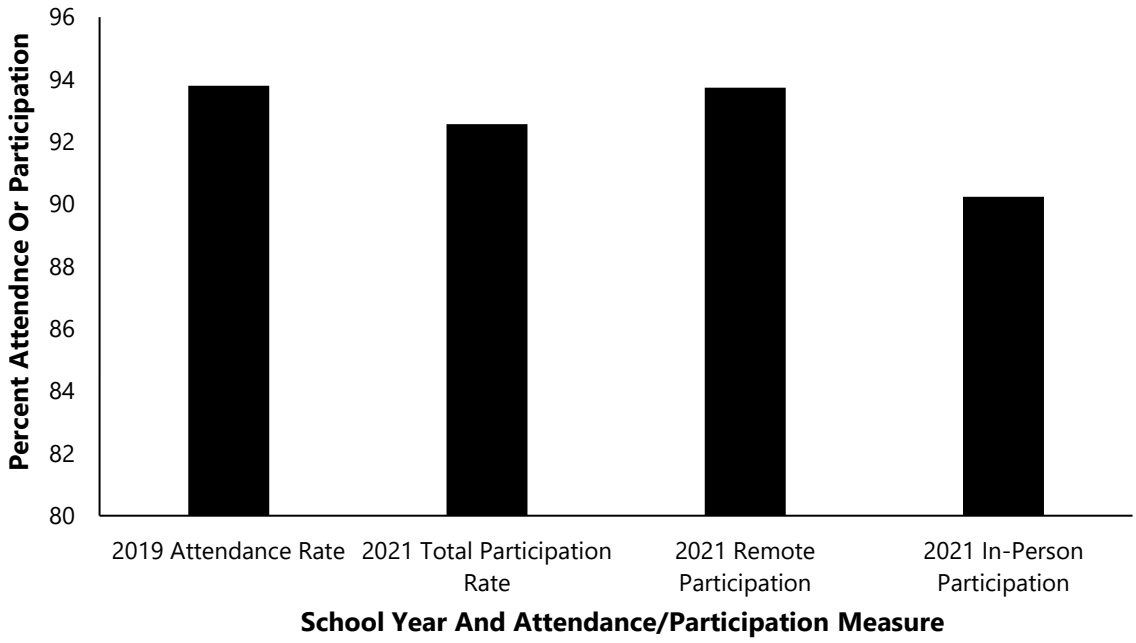
[b] One-on-one video communication or phone calls between teacher and student (or teacher and parent with smaller children or students with special needs); Group video communication or phone calls between the teacher and a whole class or between a teacher and smaller groups of students within a class; Student time logged into a learning management software system completing assignments; Submission of paper-based assignments for students in a non-digital, non-traditional setting.

allowed for a broad range in participation models; one student counted as participating might have attended many hours of synchronous instruction whereas another might have spoken briefly with a teacher by phone.

The state participation rate for all students during remote instruction in 2021 was only slightly lower than the state attendance rate for all students in 2019.

As shown in Figure 3.B, the state participation rate for all students during remote instruction in 2021 was only slightly lower than the state attendance rate for all students in 2019 (93 percent and 94 percent, respectively). At 90 percent, the in-person participation rate for 2021 was, however, lower than the 2019 attendance rate (94 percent) and also lower than the remote participation rate for 2021 (94 percent).

Figure 3.B
State-Level 2019 Attendance Rate
And 2021 Participation Rates



Source: Staff analysis of data from the Kentucky Department of Education.

The state-level remote participation rates for 2021 were virtually identical to 2019 attendance rates, but these state-level similarities mask differences between the two measures.

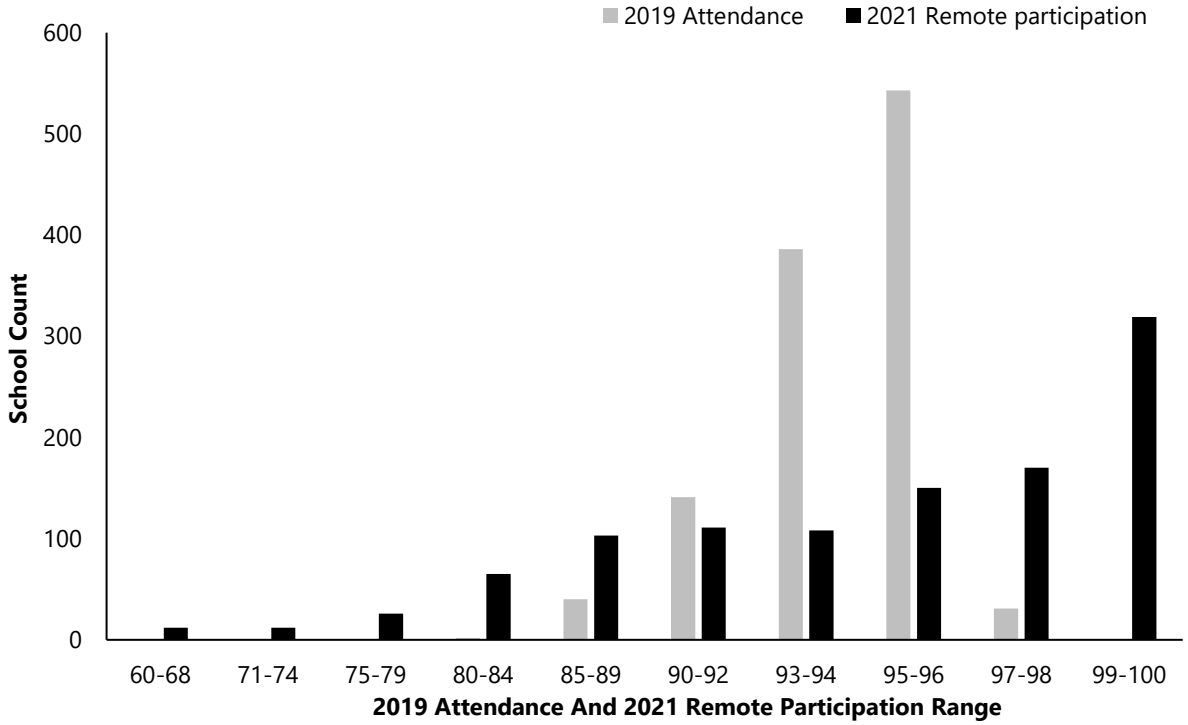
School-Level Remote Participation Rates 2021

At 94 percent, the state-level remote participation rates reported by schools during remote instruction in 2021 were virtually identical to the attendance rates reported by schools in 2019, the most recent year of comparable data for attendance as it is normally reported. State-level similarities mask dramatic differences, however, in school-level attendance and participation rates.

2019 attendance rates ranged from 85 percent to 98 percent, and the range for 2021 remote participation was 60 percent to 100 percent. Although no middle and high schools fell in the 99-100 percent range for attendance in 2019, more than half did so in 2021.

Figure 3.C shows the number of schools falling in various ranges of remote participation in 2021 and attendance in 2019. Appendix N shows the same data by school level. Whereas attendance rates in 2019 fell between a low of 85 percent and a high of 98 percent, the range for remote participation rates in 2021 went as low as 60 percent and as high as 100 percent. A large number of schools reported remote participation rates of between 99 percent and 100 percent. As shown in Appendix N, although no middle and high schools fell in the 99-100 percent range for attendance in 2019, more than half of middle and high schools did so in 2021.

Figure 3.C
Number of Schools By Range Of
2019 Attendance Rates And 2021 Participation Rates



Source: Staff analysis of data from the Kentucky Department of Education.

Chronic Absence COVID-Era NTI

Research has shown that students that are chronically absent have lower test scores, lower grades, and lower graduation rates relative to students that are not chronically absent.

This report used the standard definition of chronic absence which means missing 10 percent or more of a school year for any reason. Research has shown that students that are chronically absent have lower test scores, lower grades, and lower graduation rates relative to students that were not chronically absent.

Chronic Absence By School Poverty And Severity

Figure 3.D shows degree of chronic absence in 2021 based on student participation data and compares these with chronic absence rates in 2019 based on regular attendance data. Changes are shown for schools with varying percentages of FRPL-eligible students.

Overall chronic absence rates increased for all students from a total rate of 18.6 percent in 2019 to 21.5 percent in 2021. The percentage of students absent 30 percent or more tripled in 2021 relative to 2019.

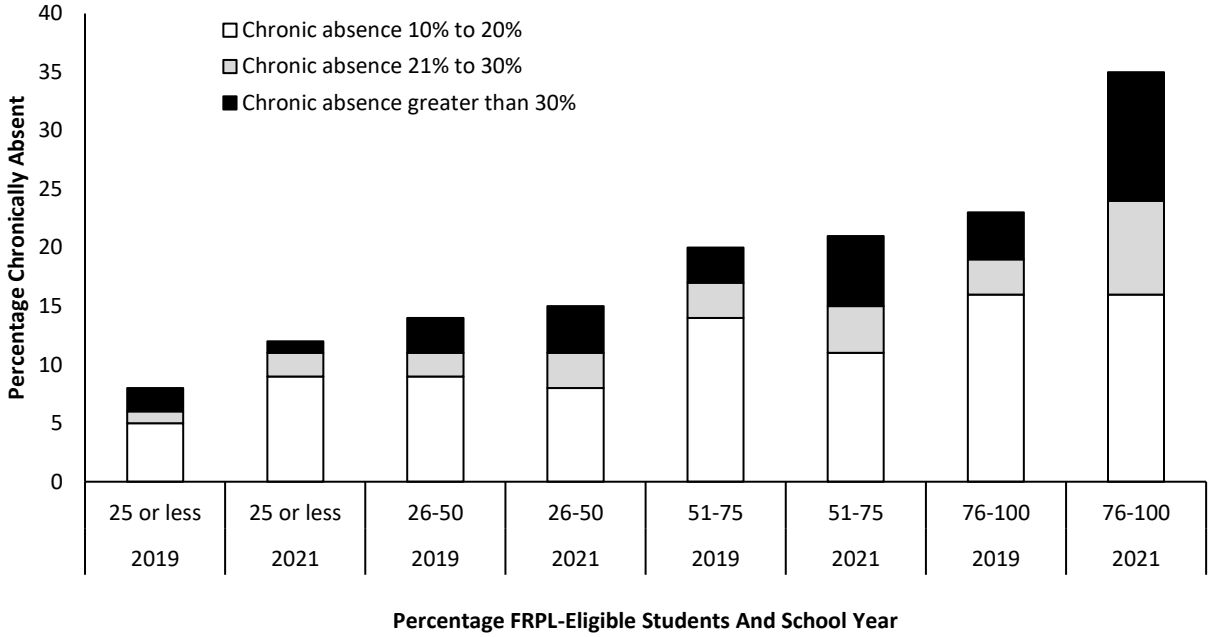
Chronic absence rates increased for all students from a total rate of 19 percent in 2019 to 22 percent in 2021. Among all chronically absent students, the percentage of students absent 30 percent or more of instructional days tripled from 2019 (approximately 2 percent) to 2021 (approximately 6 percent).

Chronic absence rates increased in all schools for the 2021 school year but increases were most prominent in the highest-poverty schools.

Chronic absence rates increased in all schools but increases were most prominent in highest- poverty schools; chronic absence in highest-poverty schools increased from 20 percent in 2019 to 32 percent in 2021. The increase in 2021 was driven by those students who missed the most school. The percentage of students in highest-poverty schools who missed more than 30 percent of instructional days increased by more than double from 2019 (4 percent) to 2021 (11 percent).

Chronic absence rates for highest-poverty schools were driven largely by Jefferson County. Appendix O disaggregates Jefferson County data from the rest of the state.

Figure 3.D
Average School-Level Chronic Absenteeism Rates
By Degree And School Percentage FRPL-Eligible Students
2019 And 2021



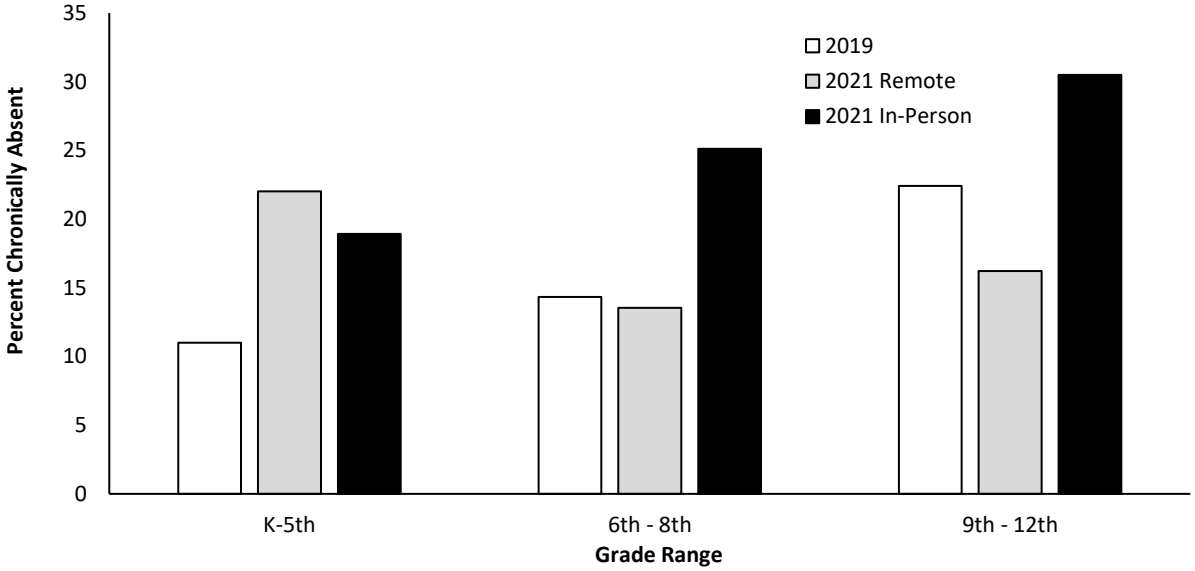
Note: Chronic absence bands for the 2019 school year include all students in A1 schools that were enrolled at least 10 days. Chronic absence bands for the 2021 school year represent students from A1 schools that were enrolled at least 10 days for in-person and remote days combined.
Source: Staff analysis on data provided by the Kentucky Department of Education.

Chronic Absence By Grade

Students in grades K-5 had higher rates of chronic absence for remote versus in-person learning days, but chronic absence rates for grades 6-8 and grades 9-12 were higher for in-person versus remote learning days.

Figure 3.E shows rates of chronic absenteeism by grade level band for 2019 and for remote days and in-person days in 2021. Students in grades K-5 had higher chronic absence rates in remote learning versus in person modes (22 percent versus 19 percent). Chronic absence rates for both modes were higher than the 2019 chronic absence rate of 11 percent for K-5 students. In contrast, students in grades 6-8 and 9-12 had much higher chronic absence rates in in-person versus remote modes. The chronic absence rate for students in grades 6-8 was 14 percent for remote learning and 25 percent for in-person learning. The chronic absence rate for students in grades 9-12 was 16 percent for remote learning and 31 percent for in-person learning. Remote learning chronic absence rates for students in grades 6-8 and 9-12 were both lower than chronic absence rates for students in these grades in 2019.

Figure 3.E
Percentage of Students Chronically Absent, By In-person Or Remote Learning Mode And Grade Range, 2021



Source: Staff analysis of data from the Kentucky Department of Education

It is not clear why students in middle and upper grades had higher rates of chronic absence for in-person versus remote instruction; it is possible that standards of participation during remote learning were easier to reach.

It is not clear why students in the middle and upper grades had chronic absence rates that were so much higher for in-person versus remote learning in 2021. It is possible that standards of participation for remote learning were relatively easier to reach compared with attending school in-person. The data may also reflect challenges faced by some students in keeping track of schedules during hybrid instruction. The frequent changes and inconsistencies from week to week presented challenges for many students.[1] One DPP commented to staff that students who remained in virtual school the entire year may have experienced better learning outcomes than those in hybrid mode because the virtual school students experienced fewer disruptions.

There were greater drops in enrollment and increases in students withdrawing to homeschool and non-public school in earlier grades compared to middle and upper grades in 2021 relative to 2019.

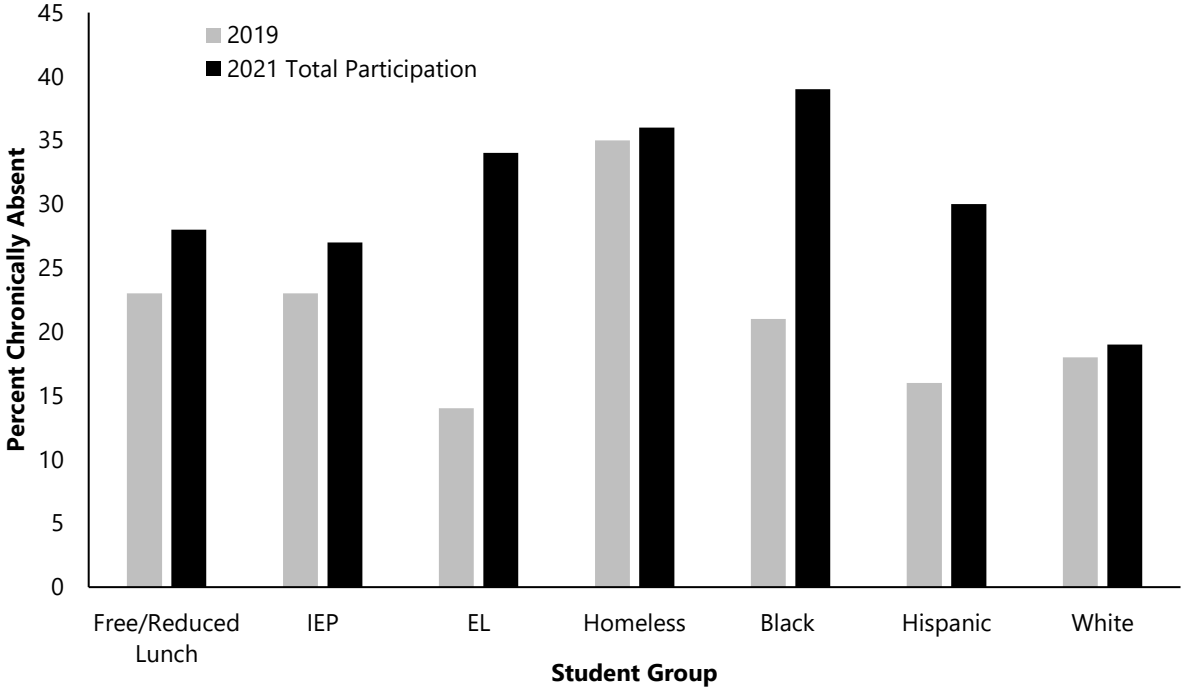
Enrollment Drops And Increases In Students Withdrawing To Homeschool And Nonpublic School In Early Grades. Higher chronic absence rates for remote learning modes in earlier grades may indicate that remote learning was more difficult to adapt for younger children. Appendix P shows data on enrollment and on students leaving public schools for homeschool or nonpublic school from 2019 through 2021. These data show greater drops in enrollment and increases in student withdrawing to homeschool and nonpublic school in the earlier grades compared with middle and upper grades.

Chronic Absence By Student Group

Chronic absence rates increased for all student groups in 2021 compared to 2019. Increases nearly doubled for EL, black, and Hispanic students.

Figure 3.F compares chronic absence rates by student demographic group and program eligibility for the 2019 school year relative to the chronic absence rates for total participation (remote and in person) in 2021. During the 2021 school year, chronic absence rates increased for all racial/ethnic groups. Increases were greatest for EL, black, and Hispanic students; chronic absence rates for those groups essentially doubled from 2019 to 2021.

Figure 3.F
Chronic Absence Rates
By Student Demographic Group And Program Eligibility
2019 Attendance And 2021 Participation



Note: IEP = Individualized Education Program
Note: EL= English language learner
Source: Staff analysis on data provided by the Kentucky Department of Education.

Conclusions From Analysis Of Participation And Chronic Absence Data

Some Students Disengage More Than Others During Remote Instruction

Student-level participation data collected by KDE in 2021 allow for greater understanding of attendance-related issues than aggregate level district data for NTI days.

The student-level participation data collected by KDE in 2021 allow for much greater understanding of attendance-related issues than do aggregate level district data previously submitted by districts for NTI days. We know, for example, that elementary

school students had higher rates of chronic absence during remote compared to in-person days; that chronic absence rates increased substantially for students in higher-poverty schools; and that chronic absence rates nearly doubled for most nonwhite student groups. In testimony to the General Assembly, district staff emphasized the utility to districts of student-level participation data that allowed districts to run reports necessary for active tracking of student participation in 2021. [2]

Participation Data Standards Vary Among Districts

A disproportionate number of districts and schools report nearly perfect NTI participation rates.

The range of district and school participation rates during NTI differs from the range of attendance rates normally reported by districts and schools; a disproportionate number of districts and schools report nearly perfect NTI participation rates data. Others report much lower participation rates than attendance rates.

In 2021, remote participation rates were higher than in-person participation rates.

Student-level remote participation rates in 2021 reveal some additional unusual patterns; most notably participation rates were higher for remote instruction than for in-person instruction. Similarly, chronic absence rates were much lower for high school students during remote instruction than in person.

Standards of evidence to support participation data may vary substantially among districts and schools. OEA makes a number of recommendations related to concerns about the validity of student participation data as an indicator of continued student learning on NTI days.

To the extent that student participation data is based on evidence of student engagement, it can be an important indicator of continued student learning during remote instruction. The analysis in this chapter suggests that the standards of evidence used in entering participation data may vary substantially among districts and schools, however, and warrant future attention. The series of recommendations in the section that follows address a range of actions that might serve to increase the validity of participation data as an indication of continued learning and the reliability of the data as a means of comparing remote learning engagement among students in different demographic groups, grades, schools, and districts.

Recommendations Related To Validity And Reliability Of Participation Data

Student-level data entry on NTI days allow for greater tracking of student participation in real time and review of data.

Student-Level Participation Data In Student Information System. Student-level data entry on NTI days allow for greater district tracking of student participation in real time and review of data by KDE. In the 2022 school year, KDE discontinued the 2021 requirement for districts to enter student participation data into IC, returning to the method of participation reporting in which districts report aggregate participation percentages per NTI day. According to KDE staff, continuing use of IC to record student-level NTI participation data would require the vendor to add additional functionality to the system.

Recommendation 3.1

Recommendation 3.1

The Kentucky Department of Education should consider requiring nontraditional instruction (NTI) districts to enter student-level participation data in the state student information system for each NTI day.

Minimum standards for instructional hour equivalents might help to eliminate some variation in the current reporting of participation data. While no consensus exists on use of instructional time to measure remote participation, research and examples from other states may provide guidance in the next year.

Minimum Requirements For Instruction On NTI Days. Kentucky's relatively low minimum expectations for student participation in 2021 may explain its higher remote versus in-person learning participation rates. For example, whereas Kentucky's chronic absence rates in 2021 were lower for remote instruction than for in-person instruction, Connecticut's chronic absence rates were much higher in remote versus in-person instruction.[3] Whereas there were no minimum requirements for the amount of instructional time that should be indicated by participation data in Kentucky, Connecticut required that instructional indicators be equivalent to at least half of the instructional day. .[c] [4] There is no national consensus about the minimum amount and types of instruction that states should require for remote learning and how these should be documented and some experts urge caution in using instructional time as a metric in remote learning.[5]

Research and examples from other states that emerge from nationwide remote learning in 2021 should offer some guidance on

[c] In Connecticut, schools were instructed to calculate the total time per student spent on synchronous virtual classes, synchronous virtual meetings; time logged into electronic systems; and estimated time spent working on assignments. Together these should equal at least one half of an instructional day. In contrast, guidelines issued by KDE allowed schools to consider students as participating based on evidence collected once a day and did not associate any time requirements with allowable participation criteria.

data standards for remote learning that might serve to offer meaningful minimum requirements to consider students participating and standard ways of documenting remote participation. Such requirements need not suggest that remote participation be measured by precise measures of instructional hour equivalents. Minimum standards for instructional hour equivalents might help, however, to eliminate some variation in current reporting of student participation data.

Recommendation 3.2

Recommendation 3.2

The Kentucky Department of Education should consider establishing, through guidance, minimum requirements for instructional hour equivalents represented by participation data.

Monitoring Of Data. KRS 161.200(2) and 702 KAR 7:125 sec. 11 require that daily attendance data be verified by certified school personnel. School-level monitoring of daily participation data might help to validate participation data and identifying any internal inconsistencies in the ways that teachers count students as participating.

Recommendation 3.3

Recommendation 3.3

The Kentucky Department of Education should consider requiring schools to designate a certified person to verify participation data on nontraditional instruction days.

KDE review of district participation data might serve to validate data and identify inconsistencies in district reporting. Data collected by learning management systems facilitate this type of review.

KDE review of district participation data might also serve to validate participation data on NTI days and identify inconsistencies in the way that districts report students as participating.
The technology of learning managements systems has evolved significantly in the last year and will make systematic attention to student participation data easier in the future.

Recommendation 3.4

Recommendation 3.4

The Kentucky Department of Education should consider conducting annual reviews of nontraditional instruction participation data of selected districts.

Participation data as currently collected does not appear to justify the granting of some districts up to one hour more than others per NTI day.

Hourly Equivalents Of Instructional Hours For Student Attendance Days. As described in Chapter 1, NTI districts are allowed to count up to 10 days of student attendance per year and local boards have the authority to establish the length of the student attendance day which can range from 6 to 7 hours. Participation data as currently collected does not appear to justify the granting of some districts up to one hour more than others per NTI day. Over the course of 10 NTI days, the additional 10 hours granted some districts would be the equivalent of about 1.5 instructional days. Because districts that have 7 hour instructional days are, by definition, districts with variable instructional calendars, these districts will already have a lower number of instructional days per year compared with other districts. [d]

Recommendation 3.5

Recommendation 3.5

The General Assembly may consider amending KRS 158.070 (9) to establish a standard number of instructional hours that can be granted for each nontraditional instruction student attendance day.

Considerations For Future KDE Oversight

Actions taken to increase the validity and reliability of student participation data may offer a greater level of accountability than is provided by KDE's current practice of individually approving each NTI day.

Increasing attention to the reliability and validity of student participation data through the recommendations above or through other means may offer a greater level of accountability for continued student learning on NTI days than does the current requirement in 701 KAR 5:150 sec.3 that KDE approve individual NTI days used by districts. As noted in Chapter 2, KDE has not rejected a district's request for NTI days based on the quality of evidence submitted.

Should KDE take steps to promote the meaningful use of student participation data to indicate continued learning, the department way wish to consider whether individual approval of NTI days is necessary.

Should KDE take steps to ensure that student participation data are meaningful indications of continued student learning, it may wish to consider whether department approval of individual NTI days is necessary.

[d] As explained in Chapter 1, districts approved for variable instructional can meet the 1,062 instructional hour requirements on the number of days approved by local boards and are not required to attend 170 days. A district whose board approved the maximum of 7 hours permitted in an instructional day could meet the 1,062 instructional hour requirements in as few as 152 days. Variable instructional years have increased in prevalence, from four districts in 2019 to six districts in 2020, and 53 districts in 2021. While the high number of districts implementing variable instruction calendars in 2021 was likely a response to the uncertainty of the COVID-19 pandemic, it is possible numbers will remain higher than they were in 2019.

Pre-COVID Academic Outcomes 2015-2018

Because NTI as normally implemented represents such a small percentage of the instructional year, it should not be expected to account for significant changes in student performance.

As NTI days represent a very small (an average of 3 percent) portion of the instructional year, it should not be expected that a district's participation in the NTI program would account for significant changes in student performance. Should a district's performance change after participating in the NTI program, it would be important to know what instructional or other factors might have influenced the district during that time before attributing the change in performance to NTI.

Staff analysis of the relative impact of NTI days, weather days, and student demographic characteristics on student state test performance suggest no substantial effects of NTI days on student performance at any school level when NTI is implemented with a 10-day limit.

Staff analyzed the relative impact of NTI days, weather days, and student demographic information on student reading and mathematics K-PREP scores taking student's performance prior to participating in the program into account. As shown in Appendix Q, staff analysis of state assessment data between 2014 and 2018 indicate no effects that are both substantial and significant of NTI days on student performance in reading or mathematics.

Based on state assessment data alone, there is no cause for concern about the continuation of learning on NTI days compared with what students would normally learn on weather make up days.

Beginning in 2020, and continuing through 2021 the average Kentucky student spent many more days in remote learning than is typical for the NTI program as it is typically implemented. Outcomes for those years are analyzed in the section that follows.

COVID-Era Graduation, Dropout, And Retention Data

State graduation, dropout, and retention rates remained fairly steady through the COVID-19 crisis.

Table 3.1 compares state-level graduation, dropout, and retention data in the COVID era (2020 and 2021) with state rates in the two prior years. The table shows no increases in 2020 or 2021 in the percentage of students that were reported as dropping out of high school or retained in grades 4 through 12.[e] The 4- and 5-year graduation rates remained fairly steady through 2020 and 2021. Both 4- and 5- year graduation rates increased slightly in 2020. While the 4-year rate dropped by one percentage point in 2021, the 5-year rate increased slightly. National literature suggests that many states relaxed graduation requirements in the face of equity

[e] Data for students retained in grade is reported only for students in grades 4-12. As required by 704 KAR 3:440, students in the primary program grades K-3 are reported as continuous progress and not described as enrolled in a specific grade level.

concerns in 2020.[6] State-level graduation requirements were modified in Kentucky in 2020, but not in 2021. [f] [g]

Table 3.1
Percentage Of Students Reported As Graduating Or Dropping Out Of High School Or Retained In Grades 4-12
2018-2021

Student End Status	2018	2019	2020	2021
4-year Graduation rate	90.3	90.6	91.1	90.0
5-year Graduation rate	91.3	91.6	92.0	92.3
Dropout	1.3	1.4	1.3	1.1
Retention	1.9	1.3	1.3	1.2

Note: Several graduation requirements were relaxed in 2020. According to the KDE, these changes Would have affected relatively few students. [7]
Source: Staff compilation of data from the Kentucky Department of Education.

COVID-Era Assessment Data

State student achievement data for 2020 are not available. The federal government waived various requirements related to state accountability systems, including the requirement to administer state tests. In 2020, no state end-of-year tests were administered in Kentucky or the nation.

As required by the federal government, state end-of-year assessments were administered in 2021. As permitted by a federal waiver, however, KDE did not use assessment data in 2021 to calculate school accountability indicators and ratings. The state assessment, which was called the Kentucky Performance Rating for Educational Progress (K-PREP) until 2019, is called the Kentucky Summative Assessment (KSA) as of 2021, in recognition of the fact that these tests measure new Kentucky Academic Standards which have been put into effect in each content area.

[f] For example, interim commissioner Kevin Brown waived the requirement that students pass a civics test in order to graduate in 2020 and that students pursuing early graduation pass required end of course exams.
[g] Data on any changes to district-level policies in 2021 were not available for this report.

Cautions In Interpreting 2021 State Assessment Data

Because of variation among test forms and variation in test participation rates among students, districts and schools, caution should be taken in interpreting 2021 assessment data.

In addition to the disruptions that occurred to in-person learning in 2021, a number of contextual factors should be taken into consideration when interpreting 2021 data. First, the assessment itself was given in an abbreviated form, to allow more time for instruction during the spring months when all Kentucky students were able to attend school in person.[h] In addition, while student participation rates generally exceeded 95 percent of all students in reading and math K-PREP assessments, participation rates were much lower in 2021; for example the percentage of students that took 2021 KSA tests in reading was 89 percent at the elementary level, 84 percent the middle school level, and 77 percent at the high school level. As shown in Appendix R, compared to all students, test participation rates were lower for FRPL-eligible students and much lower for nonwhite students.

Because of disruptions in the learning environment; differences among students in opportunities to learn in person varying participation rates; and differences in the format of the test, KDE has cautioned against making direct comparisons between 2021 and 2019 assessment data.

While caution should be taken in the types of conclusions drawn when comparing state assessment data in 2021 to 2019, state-level data do provide a general indication of changes in the percentage of students considered proficient at different school levels and in different subjects. Broad, state-level, comparative data are reported below; however, due to differences in student participation rates, test data are not disaggregated by student group.

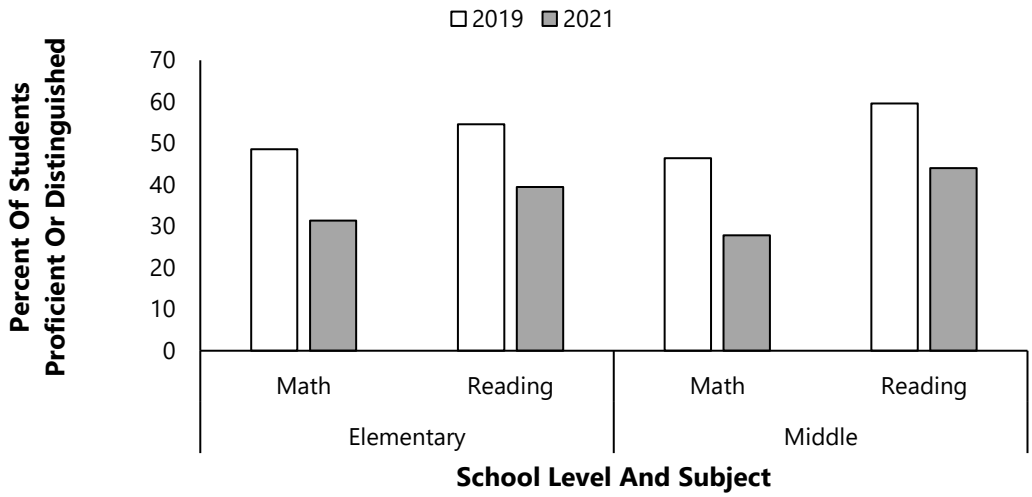
Reading And Mathematics Proficiency On State Tests

Elementary and middle school proficiency rates in reading and mathematics dropped substantially from 2019 to 2021. Proficiency rates also dropped in other states.

As shown in Figure 3.G, elementary and middle school proficiency rates in reading and mathematics dropped substantially from 2019—the last year in which state assessment data were available—and 2021. Decreases in mathematics proficiency rates were slightly greater than decreases in reading proficiency rates. Preliminary results from other states also indicate that scores have dropped sharply from 2019 levels and that drops were greater in mathematics than in reading.[8]

[h] Performance designations should, however, still be valid for indicating whether students are considered novice, apprentice, proficient or distinguished in mastery of state content standards.

Figure 3.G
Percent Proficient Or Distinguished
Reading And Mathematics On State Annual Tests
By School Level, 2019 And 2021



Note: State annual tests were called K-PREP in 2019 and KSA in 2021.
Source: Staff compilation of data form the Kentucky Department of Education.

Because data reported in figure 3.G are based on proficiency rates, they may not be sensitive to performance changes for students at all performance ranges. In addition, changes to test formats in 2021 may affect grade-level comparisons.

Interim Assessment Data From Measures Of Academic Progress (MAP)

Many Kentucky districts use interim assessments from the Northwest Evaluation Association's (NWEA) Measures of Academic Progress (MAP) to assess student progress at intervals throughout the year—fall, winter, and spring. [i] Analysis of MAP data in this section are likely more sensitive to changes across the range of student performance and by grade level than are KSA data reported above. Like KSA data, MAP data indicate greater drops in mathematics versus reading, but MAP data show greater performance drops in elementary school grade levels compared with middle school grade levels.

Numbers Of Kentucky Students Taking MAP Tests. In fall of the 2020 school year—prior to the COVID-19 pandemic— about

[i] MAP tests are most commonly given in grades 3-8 though they can also be given in the upper grades.

187,000 or 61 percent of Kentucky students in grades 3 through 8 took MAP tests. Because of the high percentage of Kentucky students learning remotely through the 2021 year, the number of MAP test takers dropped dramatically, to about 106,000 in spring 2021, the last administration of the MAP test in the 2021 school year. [j]

Changes In MAP Reading Achievement Fall 2020 To Spring 2021. Tables 3.2 and 3.3 compare median national achievement percentiles in mathematics and reading, respectively, for the cohort of about 74,000 Kentucky students who took MAP tests in both fall of the 2020 school year and spring of the 2021 school year. This cohort would have been in grades 3 through 7 in fall of the 2020 school year and represent approximately 29 percent of Kentucky students in those grades.

Median achievement percentiles for the sample of Kentucky students taking Measures Of Academic Progress (MAP) tests in fall of the 2020 school year and spring of the 2021 dropped by 15 percentile points in mathematics.

Kentucky students who tested in fall of the 2020 school year and spring of the 2021 school year had a median drop of 15 percentile points in mathematics.[k] Table 3.2 shows that median achievement percentile drops between fall 2019 and spring 2021 were greater for students in the lower grades than they were in the higher grades. Median percentile drops for students who were starting 3rd and 4th grades in fall 2019 were 18 and 21 percentile points, respectively, compared with drops of 10 percentile points for students starting 6th and 7th grades, respectively.

[j]Data on which Kentucky districts are represented in the spring 2021 data were not provided in the analysis. Terminology describing school years in data provided by NWEA differs from the terminology used in this report. NWEA describes fall of the 2020 school year as fall, 2019.
[k] Percentiles are based on national norms from the 2020 school year.

Table 3.2
Median Achievement Percentile In Mathematics
On MAP Tests Fall Of 2019 And Spring Of 2021

	Median Mathematics Achievement Percentile		
Grade In Fall 2020	**Fall 2020**	**Spring 2021**	**Difference Fall 2020-Spring 2021**
Starting 3rd	61	43	18
Starting 4th	61	40	21
Starting 5th	60	42	18
Starting 6th	56	46	10
Starting 7th	59	50	10

Source: Data generated by staff from an interactive visualization research tool provided by NWEA[9]

Kentucky students taking the MAP test dropped by 7 percentile points in reading.

Students who tested in fall of the 2020 school year and spring of the 2021 school year had a median drop of 7 percentile points in reading. Table 3.3 shows that differences in median achievement percentile drops in reading between lower and higher grades were smaller in reading than in mathematics. Median percentile drops for students who were starting 3rd and 4th grades in fall 2019 were 8 percentile points, compared with drops of 7 and 5 percentile points for students starting 6th and 7th grades, respectively.

Table 3.3
Median Achievement Percentile In Reading
On MAP Tests Fall of 2019 And Spring Of 2021
By Grade, Fall 2019

	Median Reading Achievement Percentile		
Grade In Fall 2020	**Fall 2020**	**Spring 2021**	**Difference Fall 2020-Spring 2021**
Starting 3rd	62	54	8
Starting 4th	62	54	8
Starting 5th	61	53	8
Starting 6th	61	54	7
Starting 7th	61	56	5

Source: Data generated by staff from an interactive visualization research tool provided by NWEA[10]

MAP data shown above begin at the 3rd grade level. There have been reports in the commonwealth that early readers may have lost more ground during COVID-19 NTI. [11]

Decreases in MAP scores were slightly greater for students attending high-poverty schools than for all students.

MAP Achievement Changes By School Poverty. For the student cohort described in the figures above, the median percentile drop in math for students in higher poverty schools was 20 compared with a smaller drop of 15 percentile points for all students. Median

achievement drops in reading were 9 percentile points for students in high poverty schools and 7 for all students. [l]

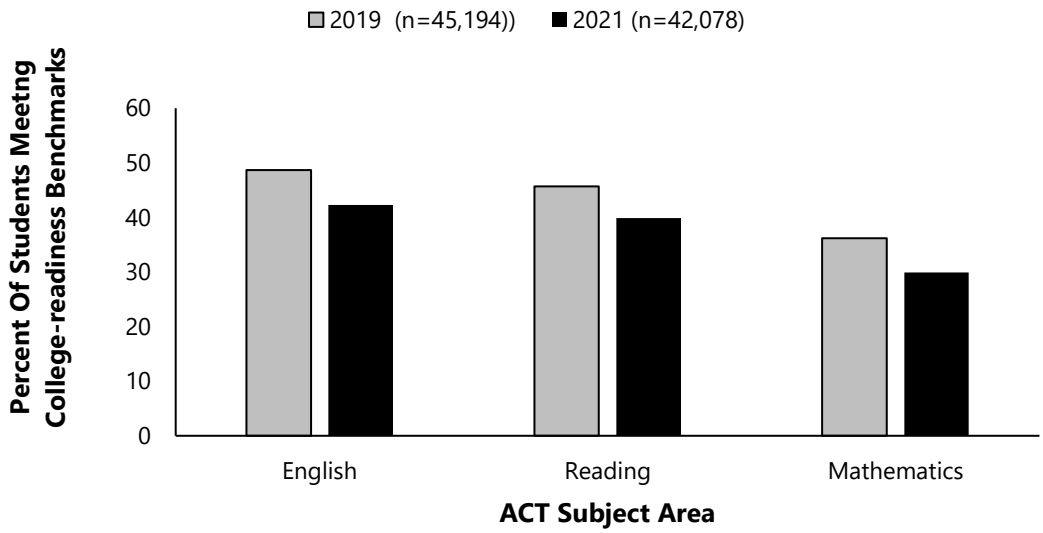
High School Juniors Meeting ACT Benchmarks

The percentage of 11th grade students meeting benchmarks on ACT English, reading, and mathematics tests dropped by about 6 percentage points from 2019 to 2021.

Figure 3.H shows the percentage of students meeting Kentucky Council on Postsecondary (CPE) Readiness benchmarks for college readiness in English, reading, and mathematics. The percentage of students enrolled in the 11th grade that took the ACT was about 98 percent in 2019 and 89 percent in 2021.

Decreases in the percentage of high school juniors meeting benchmarks from 2021 to 2019 was about 6 percentage points in each subject.

Figure 3.H
Percentage Of Students Meeting CPE ACT College-readiness Benchmarks In English, Reading, And Mathematics 2019 And 2021



Source: Staff compilation of data from the Kentucky Department of Education

[l] NWEA defines high-poverty schools as those with greater than 75 percent of students eligible for FRPL.

COVID-Era High School Course Grades

Figure 3.I shows changes in the percentage of all high school course grades given annually during COVID-era NTI (2020 and 2021) compared with data from the two preceding years. [m] Comprehensive statewide data for students in earlier grades are not available as schools are not required to enter these grades into IC.

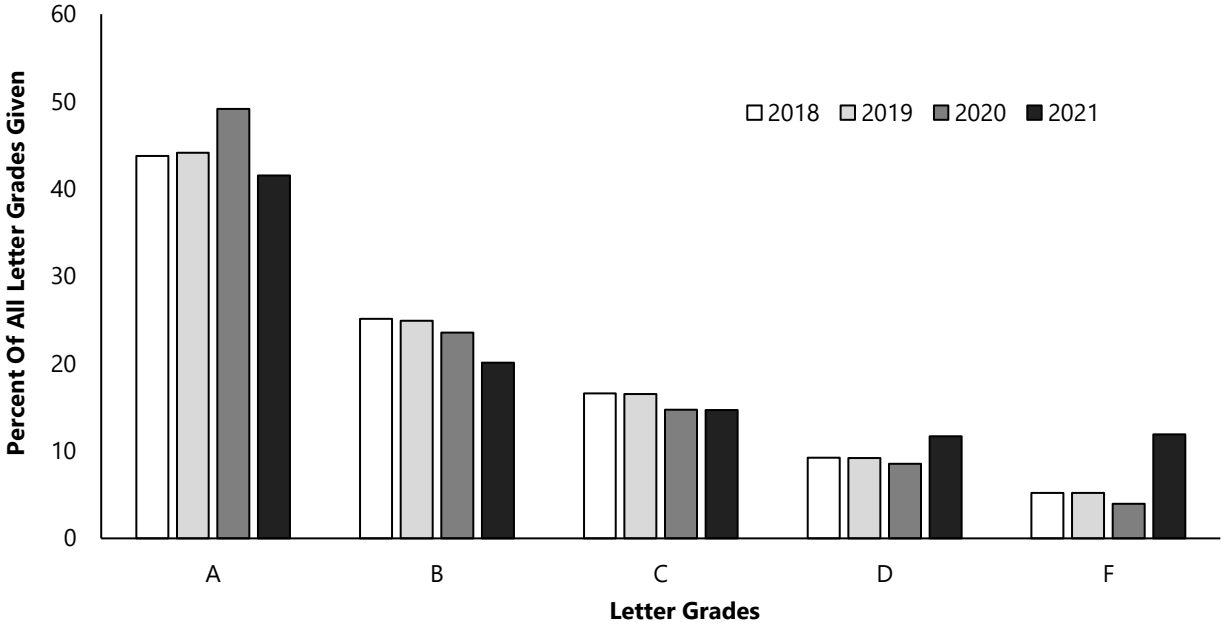
From 2019 to 2020, the percentages of course grades that were A's increased by 5 percentage points and the percentage of course grades that were F's decreased by 2 percentage points.

Academic outcomes as indicated by all high school grades given actually increased from 2019 through 2020; the percentage of A's increased from 44 to 49 percent of all grades given and the percentage of F's decreased from 5 to 4 percent of all grades given. Staff analysis also indicates a small decrease of 2 percentage points in the percentage of all students earning 1 or more F from 2019 (19 percent) to 2020 (17 percent).

Figure 3.I shows a moderate decrease of two percentage points between 2019 and 2021 in the percentage of all grades that were A's and a substantial increase of 7 percentage points between 2019 and 2021 in the percentage of all grades that were F's. The section that follows will analyze changes in letter grades between 2019 and 2021 in greater detail.

[m] Course grades are shown for students in grades 9 through 12. Course grades given in 2020 would reflect effects of remote instruction for only a portion of the school year.

Figure 3.I
Percentage Of Letter Grades Given
By Letter Grade and School Year
2018-2021



Note: Complete data on letter grades are only available for Kentucky students beginning in the 9th grade.
Source: Staff analysis of data form the Kentucky Department of Education

It is possible that educators relaxed academic expectations in 2021 in the face of concerns that not all students had equitable access to instruction.

Academic Expectations 2020. It is unclear what accounts for the increase in "A" grades and the decrease in "F" grades in 2020; this trend may reflect, in part, adjustments of performance expectations in the face of equity concerns. As schools suddenly shut down to in-person instruction in March, 2020 many faced initial challenges ensuring that all students—regardless of home internet or device access—had access to ongoing instruction. In 2020, some state graduation requirements were relaxed in response to the sudden closure of schools. [n] [12] Districts may also have relaxed some of their own graduation and grading requirements.

High School Students Receiving Failing Grades 2021 And 2019

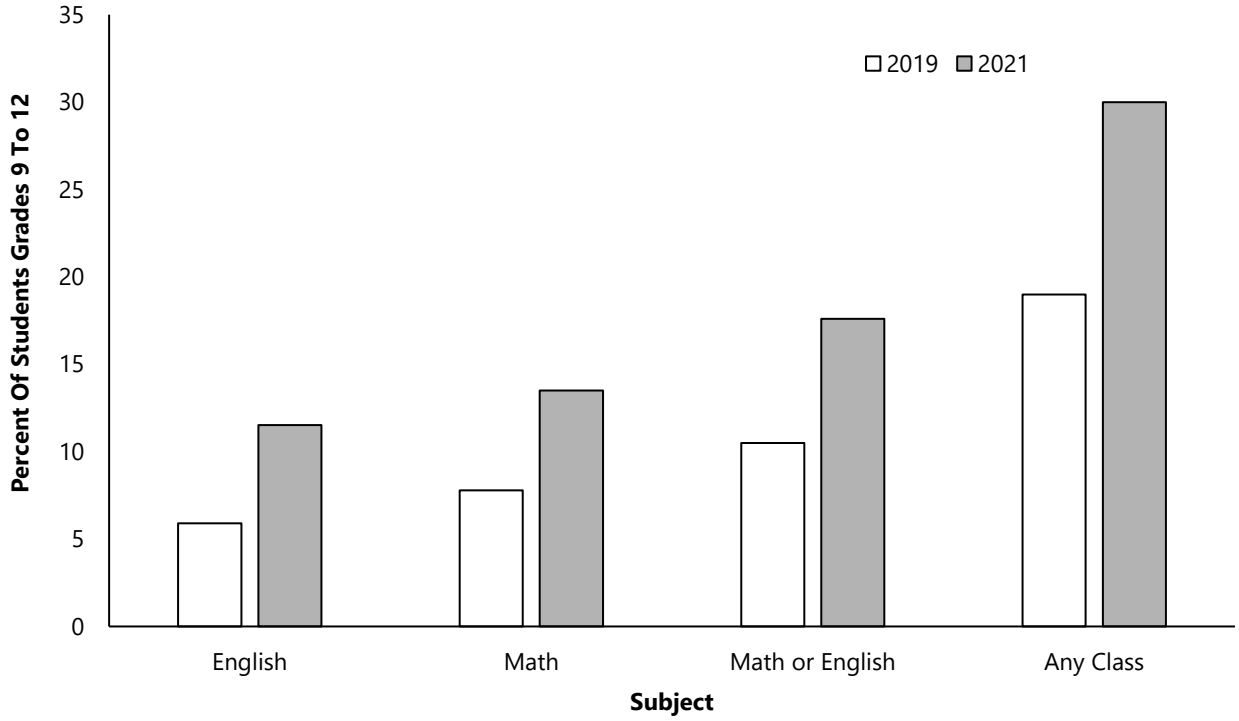
Data reported in this section contrast percentages of students earning at least one failing grade in 2021 and 2019. Because the analysis focuses on failing grades, it identifies trends likely to affect the most academically struggling students.

[n] For example, interim commissioner Kevin Brown waived the requirement that students pass a civics test in order to graduate in 2020 and that students pursuing early graduation pass required end of course exams.

The percentage of students earning failing grades increased substantially from 2019 to 2021.

All Students. Figure 3.J shows a substantial increase of 11 percentage points in the percent of students earning at least one F in any class between 2019 (19 percent of students) and 2021 (30 percent of students). The figure also shows increases between 2019 and 2021 in the percentage of students earning at least one F in English (increase of 6 percentage points, from 6 percent in 2019 to 12 percent in 2021), Mathematics (increase of 6 percentage points, from 8 percent in 2019 to 14 percent in 2021), or at least one of those subjects (increase of 7 percentage points, from 11 percent in 2019, to 18 percent in 2021).

Figure 3.J
Percentage Of Students Grades 9-12
Earning One Or More F, By Subject
2019 And 2021



Source: Staff analysis of data from the Kentucky Department of Education

Student Groups. Appendix S shows changes, by student group, in the percentages of failing grades earned in 2019 and 2021. As shown in the appendix, student groups that substantially exceeded the state increase of 7.1 percentage points in the percent of students earning at least one F in English or Mathematics were FRPL-eligible students (increase of 10.4 percentage points), Hispanic students (increase of 10.2 percentage points), and homeless

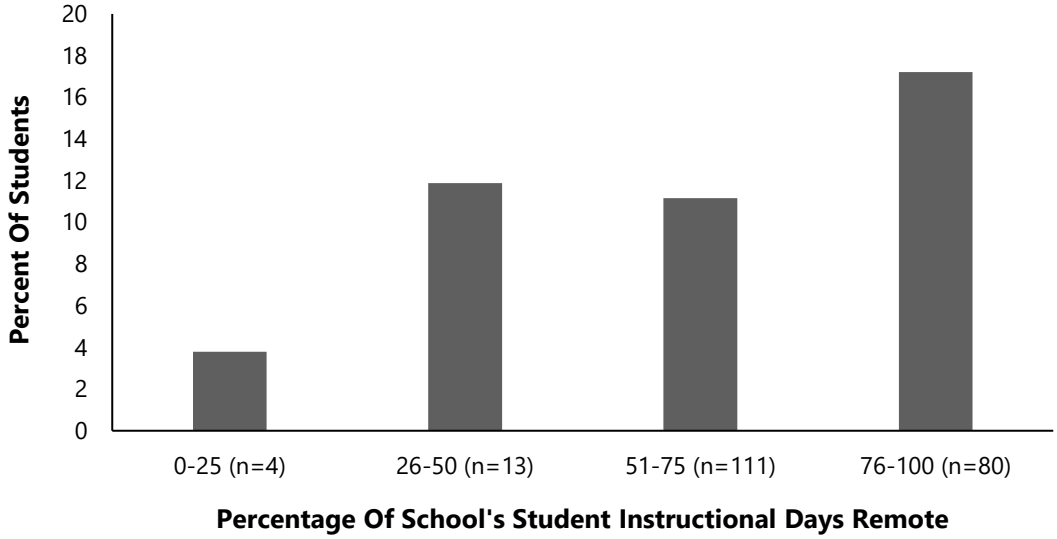
Increases in the percentage of students earning failing grades in English or math were greater for FRPL-eligible students, Hispanic students, and homeless students than they were for all students.

students (increase of 13.2 percentage points). Students whose failing grades increased at a much lower rate during these years were students not considered to be living poverty (increase of 3.2 percentage points), students with IEPs (increase of 5.3 percentage points) and Asian students (increase of 5.4 percentage points).

On average, increases in the percentage of students earning failing grades were greater in higher- versus lower-remote schools.

Association Of Increase In Failing Grades With Remote Instruction. As shown in Figure 3.K, the average change in percentage of students earning one or more F was greater in schools with higher percentages of remote instruction (76 percent or more) than in schools with lower percentages of remote instruction (25 percent or less). The average change of 17 percentage points in highest remote schools was almost four times greater than the average change of 4 percentage points in lowest remote schools.

Figure 3.K
Change in Average Percentage of Students Grades 9-12 Earning One Or More F
2019 To 2021
By School Percentage of Student Instructional Days Remote



Notes: The figure is based on data from A1 schools only. One fourth of the schools in the highest remote range (76-100) are in Jefferson County. The change in average percentage of students earning one or more F was 15 percent in Jefferson County and 18 percent in other high-remote high schools.
Source: Staff analysis of data from the Kentucky Department of Education

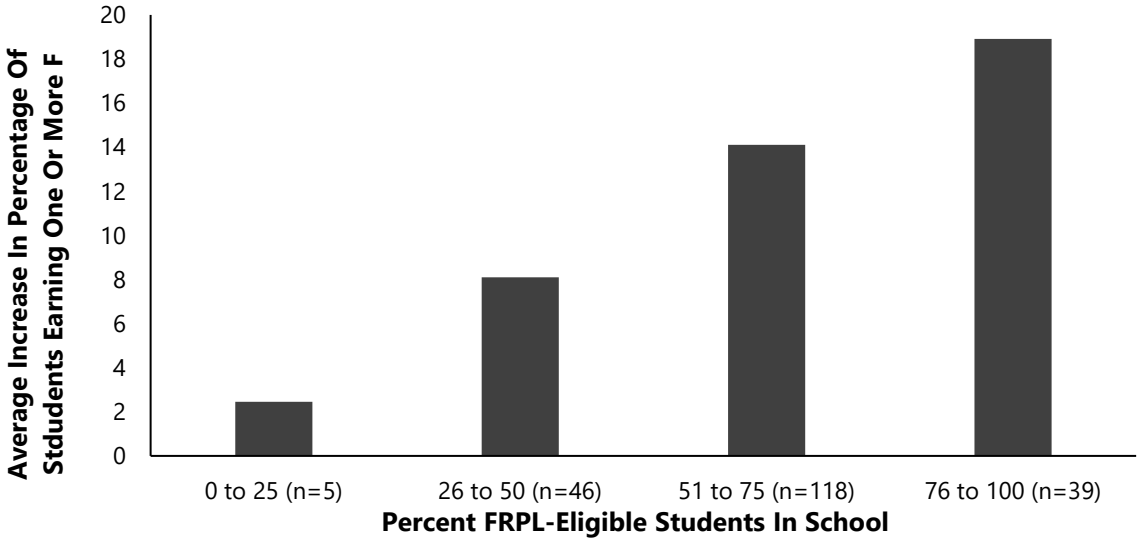
As already noted in Appendix H, higher-poverty schools have higher remote instruction rates; thus, academic outcomes as shown above in Figure 3.I also reflect associations with school poverty, shown below.

On average, increases in the percentage of students earning failing grades were much greater in higher- versus lower-poverty schools.

Association Of Increase In Failing Grades With School Poverty. As shown in Figure 3.L, the average change in percentage of students earning one or more F was much greater in highest-poverty schools in which 76 percent or more students were FRPL-eligible (increase of 19 percentage points between 2019 and 2021 in the percent of students earning one or more F) compared with lowest-poverty schools in which 25 percent or less of students were FRPL-eligible (increase of 2 percentage points between 2019 and 2021 in the percent of students earning one or more F).

The figure shows relatively small numbers of lowest-poverty high schools (5). Most high schools (118) had an average of between 51 and 75 percent FRPL-eligible students.

Figure 3.L
Average Change In Percentage Of Students Grades 9-12
Earning One Or More F
By School Percentage FRPL-Eligible Students
2019 To 2021



Note: FRPL = free or reduced-price lunch. The figure is based on data from A1 schools in which transcript data were available in 2019 and 2021.
Source: Staff analysis of data from the Kentucky Department of Education

As shown in Appendix T, among schools in the highest-remote range, increases were almost double in highest- versus lower-poverty schools.

Disproportionate increases in the percentage of students earning failing grades in higher-poverty schools may reflect lack of internet access, lack of extra academic support, or COVID-related challenges in communities.

Cause of Disproportionate Drops In Highest Poverty Schools Not Yet Known. Root causes of the disproportionate increase in percentage of students earning failing grades in higher-poverty schools are unclear. It is possible that lack of adequate internet r device access, as discussed in Chapter 2, offers partial explanation. In addition, parents in higher-poverty communities may lack some of the resources available to wealthier parents to help students that are struggling academically. For example, a survey from the Pew Charitable Trusts indicated that lower-income parents were half as likely to hire a tutor to help a struggling child as higher-income families.[13] To the extent that economic and health-related challenges from the COVID-19 pandemic disproportionately impacted poor and nonwhite communities, it is also possible that academic outcomes were affected by COVID-related challenges in students' homes or communities.[14]

Not all educators might agree that the drop in grades reported in this chapter indicate a deficiency of remote learning. In testimony to the Senate Education Committee, one Kentucky high school teacher suggested that remote learning placed more responsibility and accountability on students for their own academic success. The teacher suggested that those students who fail classes during remote learning but do not when in-person may not be taking responsibility for their own learning in the way that is necessary for future success.

> My students not successful with online learning are the same students coasting by during in person learning and not truly learning, not truly understanding…yes, their grades are better and they will get a high school diploma, but are they truly learning?[15]

Student Outcomes 2021 And NTI Program

As shown in this chapter, increases in remote learning rates statewide were associated with increases in chronic absence, especially for black students, Hispanic, and EL students and students attending higher-poverty schools. The chapter also shows substantial decreases in student academic outcomes statewide in 2021 compared with 2019. Decreases in high school academic outcomes as measured by failing grades were greater in higher- than lower-poverty schools. MAP data for a sample of elementary and middle school students also showed greater achievement drops in higher-poverty schools compared with all schools.

The implications of these findings for the NTI program are not clear as remote learning rates were so much higher in 2021 than

The implications of 2021 outcome data for the NTI program are not clear. While negative effects of remote learning were not evident when NTI was limited to 10 days, it may be that some students require greater support than others during remote learning days.

they are in the NTI program as it is normally implemented. As reported earlier in this chapter, analysis of student outcomes when NTI days are limited to 10 days show no negative effects. The findings do, however, suggest that districts should track and respond to differences among student populations in participation and performance during remote learning. This will be facilitated by Recommendation 3.1 which requires districts to enter NTI participation data directly into IC.

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[12] West, Martin and Lake, Robin. "How Much Have Students Missed Academically Because of the pandemic? A review of the Evidence to Date." Center for Reinventing Public Education, July, 2021. Web. Accessed Aug. 1, 2021.
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[14] West, Martin and Lake, Robin. "How Much Have Students Missed Academically Because of the pandemic? A review of the Evidence to Date." Center for Reinventing Public Education, July, 2021. Web. Accessed Aug. 1, 2021.
[15] Young, Casey, High School Teacher, Taylor County High School. Testimony. Senate Education Committee, Jan. 7, 2021.

Appendix A

Statute Governing NTI

KRS 158.070(9) and (10)—the NTI-related portions of the statute governing school calendars—are shown below, preceded by those portions of KRS 158.070(1) that are referenced in KRS 158.080(9).

KRS 158.070(1)

(f) "Student instructional year" means at least one thousand sixty-two (1,062) hours of instructional time for students delivered on not less than one hundred seventy (170) student attendance days;
(h) "Variable student instructional year" means at least one thousand sixty-two (1,062) hours of instructional time delivered on the number of student attendance days adopted by a local board of education which shall be considered proportionally equivalent to one hundred seventy (170) student attendance days and calendar days for the purposes of a student instructional year, employment contracts that are based on the school term, service credit under KRS 161.500, and funding under KRS 157.350.

KRS 158.070

(9) Notwithstanding any other statute, each school term shall include no less than the equivalent of the student instructional year in subsection (1)(f) of this section, or a variable student instructional year in subsection (1)(h) of this section, except that the commissioner of education may grant up to the equivalent of ten (10) student attendance days for school districts that have a nontraditional instruction plan approved by the commissioner of education on days when the school district is closed for health or safety reasons. The district's plan shall indicate how the nontraditional instruction process shall be a continuation of learning that is occurring on regular student attendance days. Instructional delivery methods, including the use of technology, shall be clearly delineated in the plan. Average daily attendance for purposes of Support Education Excellence in Kentucky program funding during the student attendance days granted shall be calculated in compliance with administrative regulations promulgated by the Kentucky Board of Education.

(10) By December 31, 2018, the Kentucky Board of Education shall promulgate administrative regulations to be effective beginning with the 2019-2020 school year to prescribe the conditions and procedures for districts to be approved for the nontraditional instruction program. Administrative regulations promulgated by the board under this section shall specify:

(a) The application, plan review, approval, and amendment process;
(b) Reporting requirements for districts approved for the program, which may include but are not limited to examples of student work, lesson plans, teacher work logs, and student and teacher

participation on nontraditional instruction days. Documentation to support the use of nontraditional instruction days shall include clear evidence of learning continuation;
(c) Timelines for initial approval as a nontraditional instruction district, length of approval, the renewal process, and ongoing evaluative procedures required of the district;
(d) Reporting and oversight responsibilities of the district and the Kentucky Department of Education, including the documentation required to show clear evidence of learning continuation during nontraditional instruction days; and
(e) Other components deemed necessary to implement this section.

Appendix B

NTI Regulation

701 KAR 5:150. Nontraditional instruction program.

RELATES TO: KRS 158.070 STATUTORY AUTHORITY: KRS 156.029, 156.070, 156.160, 158.070

NECESSITY, FUNCTION, AND CONFORMITY: KRS 156.029(7) requires the Kentucky Board of Education (KBE) to adopt policies and administrative regulations by which the Kentucky Department of Education (department) shall be governed in planning and operating programs within its jurisdiction. KRS 156.070(5) requires the KBE, upon the recommendation of the Commissioner of Education (Commissioner), to establish policy or act on all programs, services, and other matters which are within the administrative responsibility of the department. KRS 158.070 requires the KBE to promulgate an administrative regulation to prescribe the conditions and procedures for local education agencies (districts) to be approved for the nontraditional instruction program. This administrative regulation establishes the requirements and approval process for districts to be approved for the nontraditional instruction program.

Section 1. Definitions. (1) "Comprehensive District Improvement Plan" shall have the same meaning as defined in 703 KAR 5:225, Section 1(3).

(2) "Instructional delivery method" means the delivery system and instructional techniques used in meeting the learning needs of students regardless of their physical location.

(3) "Minimum school term" or "school term" is defined in KRS 158.070(1)(b).

(4) "Nontraditional instruction day" means a day during the school term that a local school district is closed for health or safety reasons that is approved by the commissioner, pursuant to KRS 158.070(9), to be the equivalent to a student attendance day.

(5) "Nontraditional instruction plan" means the strategy approved by the commissioner and implemented by a local school district to ensure instruction on nontraditional instruction days is a continuation of learning that is occurring on regular student attendance days as required by KRS 158.070(9).

(6) "Professional learning plan" means the strategy implemented to ensure staff in a local school district acquire, enhance, and refine the knowledge, skills, practices, and dispositions necessary to create and support high levels of learning for all students.

(7) "Student attendance day" is defined in KRS 158.070(1)(e).

Section 2. Nontraditional Instruction Plan. (1) A district seeking commissioner approval, pursuant to KRS 158.070, of a nontraditional instruction plan shall annually incorporate it within the Comprehensive District Improvement Plan.

(2) A nontraditional instruction plan incorporated within the Comprehensive District Improvement Plan shall:

(a) Provide an overview of the district's vision for ensuring a continuation of learning when implementing nontraditional instruction;

(b) Describe in detail:

1. How instruction shall be delivered for students in nontraditional settings;

2. The steps the district shall take to ensure a continuation of learning occurs for students in nontraditional settings;

3. How, if at all and to the extent permitted by applicable statutes and administrative regulations, the district shall ensure a continuation of learning occurs for those students utilizing, for any reason, nontraditional instruction during time periods when the district may be offering and providing in-person instruction to other students;

4. How the district shall ensure a continuation of learning for students with Individual Education Plans in nontraditional settings;

5. Additional efforts that may be necessary to ensure a continuation of learning for other special populations of students in nontraditional settings;

6. How the district has coordinated or will coordinate with other educational entities to ensure a continuation of learning for students in nontraditional settings;

7. How teachers shall instruct, support, and communicate with students in order to ensure academic progress as well as promote social and emotional well-being for students in nontraditional settings;

8. The professional learning activities the district shall provide certified staff to ensure they have the skills necessary to provide a continuation of learning for students in nontraditional settings;

9. How the district shall deploy all staff when school is closed to in-person instruction;

10. The partnerships the district has established with other community agencies to increase opportunities for a continuation of learning for students in nontraditional settings; and

11. The district's communication plan for parents, students, and community members for students in nontraditional settings;

(c) Explain how the nontraditional instruction plan relates to district goals; and (d) Provide other evidence deemed necessary by the department to effectively review and approve or deny a district's nontraditional instruction plan.

(3) The department shall provide technical assistance, upon request, to districts prior to the incorporation of a nontraditional instruction plan within the Comprehensive District Improvement Plan.

(4) A district shall submit the nontraditional instruction plan to the department by May 1 for implementation at the beginning of the upcoming school term.

(5) The commissioner or his designee shall review and approve or deny a completed nontraditional instruction plan within forty-five (45) days from receipt.

(6)(a) A district approved to participate in the nontraditional instruction program may amend its nontraditional instruction plan as needed at any time by submitting a written amendment request to the department.

(b) The amendment request shall contain a description of the amendment, proposed timeline for implementation, and justification for the request.

(c) The Commissioner or his designee shall review the amended nontraditional instruction plan and approve or deny it within forty-five (45) days of the amendment submission.

Section 3. Use of Nontraditional Instruction Days. (1) If a district is approved by the commissioner or his designee to participate in the nontraditional instruction program, the district may apply for and the commissioner may approve the use of nontraditional instruction days on days when the district is closed for health or safety reasons pursuant to KRS 158.070.

(2) The district shall seek approval from the commissioner to use one (1) or more nontraditional instruction days by submitting a request and appropriate supplemental documentation, as required by the department, to the department within thirty (30) days following the day the district was closed for health or safety reasons.

(3) The commissioner shall approve or deny a district's use of one (1) or more nontraditional instruction days within thirty (30) days from receipt of the district's request and appropriate supplemental documentation, as required by the department. A request to use one (1) or more nontraditional instruction days shall be denied by the commissioner if the district fails to supply clear evidence demonstrating a continuation of learning from regular student attendance days occurs on nontraditional instruction days. Clear evidence may include:

(a) Examples of student work;

(b) Lesson plans; or

(c) Curriculum maps.

Section 4. Monitoring and Revocation of Nontraditional Instruction Programs. (1) At the conclusion of each school term, a district approved by the commissioner or his designee to participate in the nontraditional instruction program may receive an annual site visit from a review

team selected and trained by the department. The purpose of the site visit is to monitor the district's progress in implementing the approved nontraditional instruction plan.

(2) If a site visit is conducted by the department, the site visit shall:

(a) Be made following adequate advanced notice to the district; and

(b) Include the gathering of information through the examination of records related to the district's implementation of the approved nontraditional instruction plan, including amendments if applicable, and through interviews with district leadership, staff, and students as well as other stakeholders.

(3) In addition to any site visit that may be conducted pursuant to subsections (1) and (2) of this section, a district approved by the commissioner or his designee to participate in the nontraditional instruction program shall, upon request, make the following available for inspection

by the department:

(a) Documentation of the instructional delivery methods used on nontraditional instruction days;

(b) Evidence demonstrating the district provides access on nontraditional instruction days to online resources, if used, and equitable instructional materials for students who do not have access to the internet and for students needing to access information differently;

(c) Clear evidence demonstrating a continuation of learning from regular student attendance days occurs on nontraditional instruction days. Clear evidence may include:

1. Examples of student work;

2. Lesson plans; or

3. Curriculum maps.

(d) Evidence demonstrating the district ensures implementation of Individual Education Programs for students with disabilities, including the involvement of the Admissions and Release Committee in planning for and making decisions related to the participation and needs of students with disabilities, on nontraditional instruction days;

(e) Evidence demonstrating the district ensures implementation of other student-specific educational plans, including Program Service Plans for English Learners and Gifted Student Service Plans for students identified as gifted and talented, on nontraditional instruction days;

(f) Data demonstrating student participation and student learning on nontraditional instruction days;

(g) Evidence demonstrating how each job category within the district fulfills contractual obligations on nontraditional instruction days and data, including teacher work logs, demonstrating employee participation on nontraditional instruction days;

(h) The professional learning plan implemented by the district to ensure certified staff have the knowledge and capacity to provide instruction on nontraditional instruction days and evidence demonstrating implementation;

(i) Where appropriate, agreements about nontraditional instruction days between the district and educational agencies that are external to the district but have students of the district in attendance on a part-time or full-time basis;

(j) Evidence demonstrating stakeholder involvement in developing and implementing nontraditional instruction days;

(k) Methods used by the district to relay information about nontraditional instruction days to students and families; and

(l) Other evidence deemed necessary by the department to effectively monitor the implementation of the approved nontraditional instruction plan, including amendments if applicable.

(4) The commissioner or his designee may revoke approval of a district's nontraditional instruction program as a result of evidence collected pursuant to this section.

(5) Prior to having approval of its nontraditional instruction program revoked, a district shall receive a site visit from a review team selected and trained by the department. The purpose of the visit shall be to monitor the district's progress in implementing the nontraditional instruction program, collect qualitative data on the effectiveness of the nontraditional instruction program, and verify the district's compliance with all applicable laws. A site visit shall be made following adequate advance notice to the district and may include the gathering of information through:

(a) Direct observation;

(b) Interviews with staff and students; or

(c) Examination of records. (45 Ky.R. 1468, 2329; eff. 3-8-2019; 47 Ky.R. 1061, 1554; eff. 5-4-2021.)

Appendix C

Attenendance And Particpation Requirements For Remote Options Introduced In 2022

Senate Bill 1 Of 2021 Special Session

Sec 5(1) of Senate Bill 1 of the 2021 Special Session allows districts to temporarily assign "students at the school, grade, classroom, or student group level to remote instruction" because of significant absences due to Covid-19 through December 31. 2021. Sec.(3) clarifies that remote instruction for these units within a district is limited to a total of 20 days per unit and a total of 20 days by the district. For students in temporary remote instruction due to COVID-19, Sec.(4) requires that remote instruction include "at least the minimum daily instruction required pursuant to KRS 158.060, which shall include content standards as provided in the Kentucky Academic Standards."

Virtual School Waiver

In 2022, KBE gave districts the opportunity to apply for a waiver for portions of KAR 7:125 sec. (1) and (4) to allow for attendance-based rather than performance based virtual learning and to allow for students in all grades to participate. Regulation does not normally allow for performance-based learning for students in grades K-4.

To be eligible for the waiver, districts had to agree to a number of assurances including several related to attendance/participation:

- Attendance for middle and high school students must be tracked by a certified teacher in every course and recorded in the student information system.
- Attendance for elementary school students must be tracked at least twice a day (3 hours apart) by a certified teacher and recorded in the student information system.
- Attendance clerks or other assigned district personnel shall reconcile attendance for each course/period to ensure proper codes are entered for absent students. Attendance events shall continue to be entered at the office level. District understands and agrees that attendance information provided shall be subject to audit by KDE.
- In addition to other strategies, the virtual school shall implement synchronous strategies and "prioritize frequent live, regularly-scheduled contact with a Kentucky certified teacher." [1]

702 KAR 7:125E- Attendance Tracking For Quarantined Students

Through emergency regulation KBE permitted districts to provide remote instruction to students in quarantine or isolation due to COVID-19 exposure or infection and to count students in daily

instruction. 702 KAR Sec. 1(4)(i) requires that students instructed remotely receive " at least the minimum amount of daily instruction required pursuant to KRS 158.060."

KDE guidance in connection with this emergency regulation states that "this does not have to be 100% synchronous instruction but should include interaction with a teacher during the quarantine period" and that the instruction must be the equivalent of at least six hours of daily instruction. [a] It further clarifies:

> In the same general regard that districts monitor/track in-person student daily instruction, schools and districts can develop internal continuation of learning strategies appropriate for their students. This can include, but not be limited to, gauging interactions and engagement through lesson plans, pacing guides, observation, student work, and assessments. Additionally, metrics provided through synchronous and asynchronous digital tools for interactions/engagement (such as activity time in a learning management system) can be used. As part of the strategy, districts should utilize digital strategies from last school year's extended NTI period that proved effective, as well as any new blended learning strategies developed by the school or district for this year. Intentional interactions with quarantined students (either with the in-person traditionally assigned teacher or other certified staff assigned to assist with virtual instructional activities) are encouraged as part of the strategy but there is no required amount or type of specific interaction that needs to be kept track of for reporting purposes. Attendance auditors will check for written documentation outlining delivery of instruction for quarantined/isolated students during attendance audits.[2]

Hybrid Performance-Based Schedule

In guidance for offering a performance based classes that combine in-person and virtual classes, KDE stated that

> The hybrid and blended learning environment shall include synchronous (real-time or live) strategies and digital platforms for two-way, student to teacher visual and verbal interactions. Additionally, a learning management system (LMS) or other digital platforms shall be utilized to allow teachers to monitor student's progress, interactions and engagement with the teacher and other students online for the review of student work and completion of assignments in both realtime and on-demand (asynchronous interactions). Frequent live, regularly scheduled contact with a Kentucky certified teacher is suggested and should be prioritized to support student learning and produce more effective outcomes.[3]

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[1] Kentucky Department of Education. "Application Of Waiver Of Kentucky Administrative Regulation, Kentucky Board of Education." Web. Sept. 1, 2021, pp 3-4.
[2] Kentucky Department of Education. "Attendance Tracking For Quarantined Students-2021-2022 School Year." Web. Accessed Sept. 1, 2021, p.3
[3] Kentucky Department of Education. "Guidance For Offering A Hybrid Performance-Based Schedule." Web. Sept. 1, 2021, p.3

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[a] With the exception of students exempted in 158.060(3).

Appendix D

Instances When Instructional Hours Were Waived For School Districts, 2014 To 2016

During the 2011 school year school districts across Kentucky used12 weather days on average, but there were districts in eastern Kentucky that had to take more than twice that many weather days that year. At that time weather days were primarily made up at the end of the school year. During the 2011 school year there were 63 districts with the last day for students occurring after June 1. The following year, the General Assembly established the Snow-Bound Pilot Program. Leslie, Owsley, and Wolfe Counties were the pilot districts.

Weather days decreased considerably across the state for the 2012 and 2013 school years and increased dramatically in the 2014 school year. In that year, the three pilot districts averaged approximately 34 weather days plus NTI days, while all other districts averaged 15.6 weather days.

The NTI program was made available to all districts through statute starting in the 2015 school year. Ten other districts joined the 3 pilot districts in the NTI program in 2015, and more districts came on each year during school years 2016 to 2019.

HB 211 (2014)

As shown in Figure 2.A, the highest count of total weather days for the state occurred during the 2014 school year. The average number of weather days for the state was approximately 16 days that year, but there were pockets of districts in more remote districts in the state that had 25 or more weather days. The high number of weather days led to concerns that the minimum requirement of 1,062 instructional hours would be difficult to achieve for some districts.

HB 211 (2014) included language that allowed districts to request assistance, by May 1, 2014, with developing plans to maximize instructional time before June 6, 2014. If the commissioner determined that a district would still fall short of the minimum instructional hour requirement, then the commissioner was given the authority to waive the remaining instructional hours required for that year.

School districts were permitted to increase the instructional time per day up to a 7 hour limit, but still 62 districts were below the 1,062 instructional hour requirement by the end of that school

year.[a] Of those 62 districts, 31 went on to become member districts in the NTI program, and the other 31 districts were not prior to the 2020 school year.[b]

SB 119 (2015)

The weather closures were high during the 2015 school year as well, and thus SB 119 (2015) included language similar to HB 211 (2014) that allowed districts to seek assistance from KDE on developing plans to maximize instructional hours, and permitting the commissioner to waive hours for districts that despite best efforts would not reach the 1,062 instructional hours requirement.

None of the 13 NTI districts at the time were below the instructional hour requirement that year, but 12 of those districts would have been below the requirement were it not for NTI days. Those 13 districts averaged 7.7 NTI days used in 2015, with 5 of those districts using the maximum number of NTI days that year.

HB 111 (2016)

HB 111 (2016) included similar language to the other bills above for waiving hours for districts that did not meet the 1,062 instructional hour requirement. There were 15 districts that had hours waived for the 2016 school year, but if not for NTI days the total would have been 40 districts below the instructional hour requirement.[c]

[a] Owsley County used 10 NTI days during the 2014 school year, which helped the district exceed the 1,062 instructional hour requirement. Wolfe County also met the instructional hours requirement for the 2014 school year, and used 4 NTI days that year. Leslie County was one of the 62 districts that did not meet the 1,062 hour requirement, but the district did not utilize NTI days that year. Leslie County was just 21 hours short of the requirement, so if the district used 3.5 NTI (6 hour) days it would have met the 1,062 instructional hour minimum that year.

[b] As stated in the footnote above, Leslie County was already an NTI district at the time.

[c] Four of the 15 districts that did not meet hours in 2016 were NTI districts, but those districts did use at least 7 NTI days and averaged 1,059 instructional hours that year.

Appendix E

List Of Districts By NTI Cohort

List Of Districts By Year Of Participation In The Nontraditional Instruction Program School Years 2012 To 2020

District Name	NTI Cohort
Allen County	2018 Cohort
Augusta Independent	2019 Cohort
Barbourville Independent	2017 Cohort
Barren County	2016 Cohort
Berea Independent	2019 Cohort
Boyd County	2019 Cohort
Boyle County	2015 Cohort
Breckinridge County	2019 Cohort
Burgin Independent	2017 Cohort
Carroll County	2019 Cohort
Casey County	2017 Cohort
Clay County	2017 Cohort
Clinton County	2016 Cohort
Cloverport Independent	2017 Cohort
Corbin Independent	2015 Cohort
Crittenden County	2017 Cohort
Cumberland County	2017 Cohort
Edmonson County	2017 Cohort
Elliott County	2016 Cohort
Floyd County	2020 Cohort
Franklin County	2018 Cohort
Gallatin County	2016 Cohort
Garrard County	2016 Cohort
Grant County	2015 Cohort
Graves County	2016 Cohort
Green County	2016 Cohort
Hancock County	2018 Cohort
Harlan County	2016 Cohort
Harlan Independent	2016 Cohort
Harrison County	2018 Cohort
Hart County	2017 Cohort
Hickman County	2018 Cohort
Hopkins County	2016 Cohort
Jackson County	2017 Cohort
Jackson Independent	2017 Cohort
Jenkins Independent	2019 Cohort
Jessamine County	2015 Cohort
Johnson County	2015 Cohort
Knott County	2016 Cohort

District Name	NTI Cohort
Knox County	2016 Cohort
Lawrence County	2015 Cohort
Lee County	2017 Cohort
Leslie County	2012 Pilot
Letcher County	2020 Cohort
Lewis County	2018 Cohort
Lincoln County	2017 Cohort
Livingston County	2016 Cohort
Logan County	2016 Cohort
Madison County	2016 Cohort
Magoffin County	2020 Cohort
Marion County	2016 Cohort
Martin County	2016 Cohort
Mason County	2016 Cohort
McCreary County	2017 Cohort
McLean County	2016 Cohort
Meade County	2016 Cohort
Mercer County	2016 Cohort
Metcalfe County	2016 Cohort
Monroe County	2016 Cohort
Montgomery County	2016 Cohort
Nelson County	2016 Cohort
Nicholas County	2018 Cohort
Owsley County	2012 Pilot
Paris Independent	2019 Cohort
Pike County	2015 Cohort
Powell County	2019 Cohort
Pulaski County	2016 Cohort
Russell County	2016 Cohort
Russell Independent	2016 Cohort
Scott County	2017 Cohort
Shelby County	2017 Cohort
Taylor County	2015 Cohort
Todd County	2015 Cohort
Trigg County	2017 Cohort
Trimble County	2019 Cohort
Union County	2018 Cohort
Washington County	2015 Cohort
Wayne County	2018 Cohort
Webster County	2016 Cohort
West Point Independent	2017 Cohort
Williamsburg Independent	2017 Cohort
Wolfe County	2012 Pilot
Woodford County	2017 Cohort

Source: Kentucky Department of Education.

Appendix F

District Characteristics – NTI Compared To No-NTI

District Demographics
By NTI Cohort
Average For School Years 2012 To 2019

NTI Cohort	Percent FRPL	Exceptional Child	LEP	White	Black	Hispanic	Other	Per Pupil Assessment
Pilot (n=3)	77.6%	18.8%	0.8%	92.8%	2.5%	2.2%	2.5%	$254,139
2015 Cohort (n=10)	61.8%	14.6%	1.9%	90.7%	2.9%	3.2%	3.2%	$370,785
2016 Cohort (n=29)	64.1%	14.8%	1.3%	90.3%	2.9%	3.7%	3.1%	$387,876
2017 Cohort (n=21)	65.9%	15.5%	2.7%	87.0%	3.7%	6.0%	3.3%	$346,005
2018 Cohort (n=9)	62.3%	13.5%	1.5%	87.3%	4.7%	3.8%	4.2%	$405,427
2019 Cohort (n=9)	67.1%	14.7%	1.3%	90.6%	2.4%	3.9%	3.0%	$351,012
Never NTI (n=92)	61.5%	13.3%	4.3%	73.2%	14.4%	6.6%	5.9%	$416,892
All Districts (n=173)	63.1%	13.8%	3.4%	78.7%	10.6%	5.7%	5.0%	$393,912

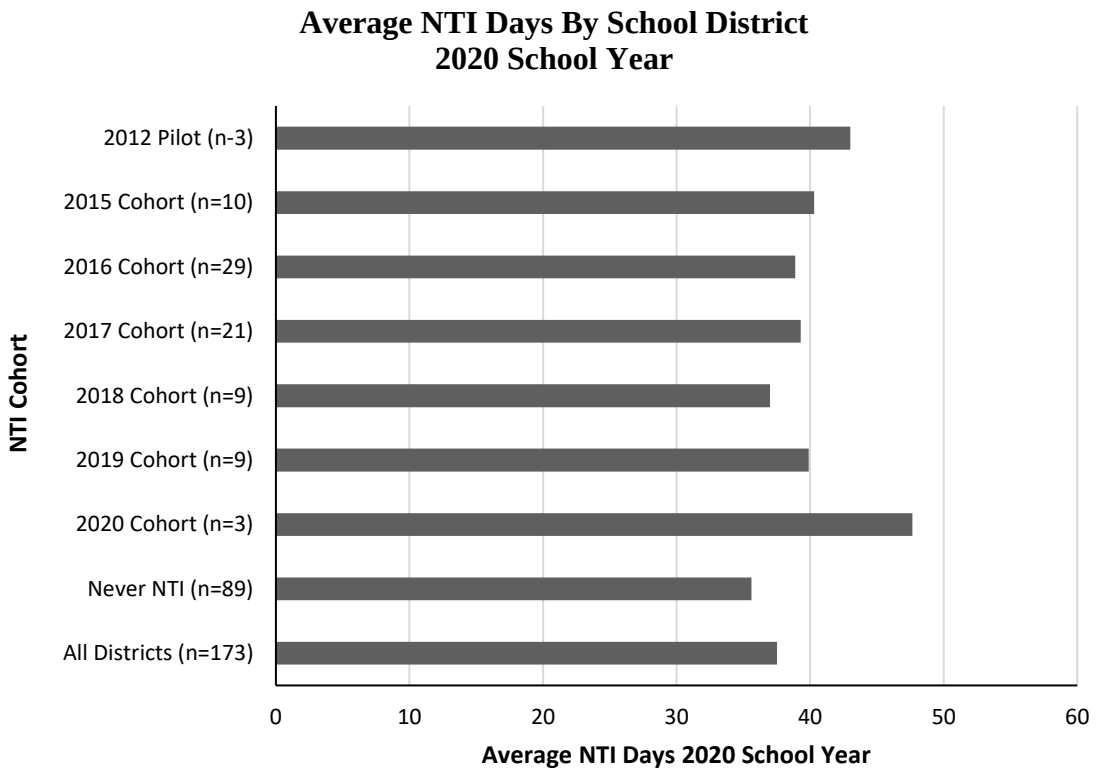
Source Kentucky Department of Education.

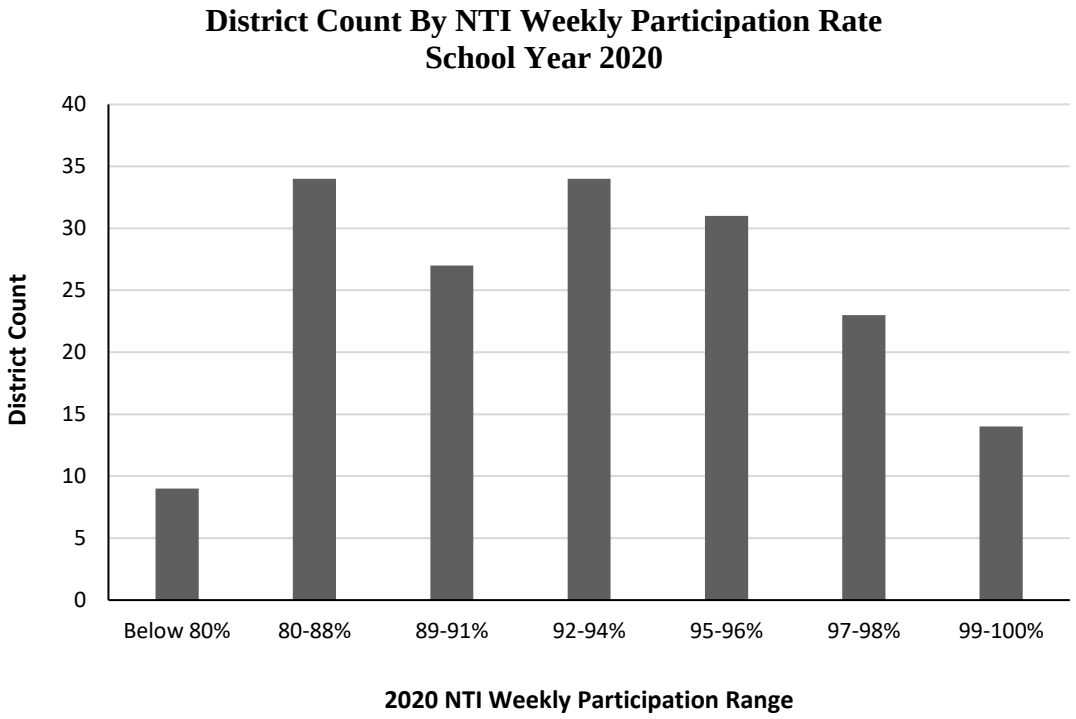
Achievement Comparison
NTI Relative To Non-NTI Districts
2014 Relative To 2019

Proficiency Metric	Never NTI	NTI	All Districts
2014 Elementary Math	48%	45%	47%
2019 Elementary Math	49%	47%	48%
2014 Middle Math	44%	43%	43%
2019 Middle Math	47%	45%	46%
2014 Elementary Reading	54%	53%	53%
2019 Elementary Reading	55%	55%	55%
2014 Middle Reading	53%	52%	53%
2019 Middle Reading	60%	60%	60%
2014 ACT Math	19.0	18.6	18.8
2019 ACT Math	18.4	17.9	18.1
2014 ACT Reading	19.4	19.0	19.2
2019 ACT Reading	19.5	19.0	19.2

Source Staff analysis of data from the Kentucky Department of Education.

Appendix G


Average NTI Days By School District
2020 School Year
NTI Cohort
2012 Pilot (n-3)
2015 Cohort (n=10)
2016 Cohort (n=29)
2017 Cohort (n=21)
2018 Cohort (n=9)
2019 Cohort (n=9)
2020 Cohort (n=3)
Never NTI (n=89)
All Districts (n=173)
0
10
20
30
40
50
60
Average NTI Days 2020 School Year


District Count By NTI Weekly Participation Rate
School Year 2020
District Count
40
35
30
25
20
15
10
5
0
Below 80%
80-88%
89-91%
92-94%
95-96%
97-98%
99-100%
2020 NTI Weekly Participation Range

Appendix H

Remote Rates By Student Characteristics

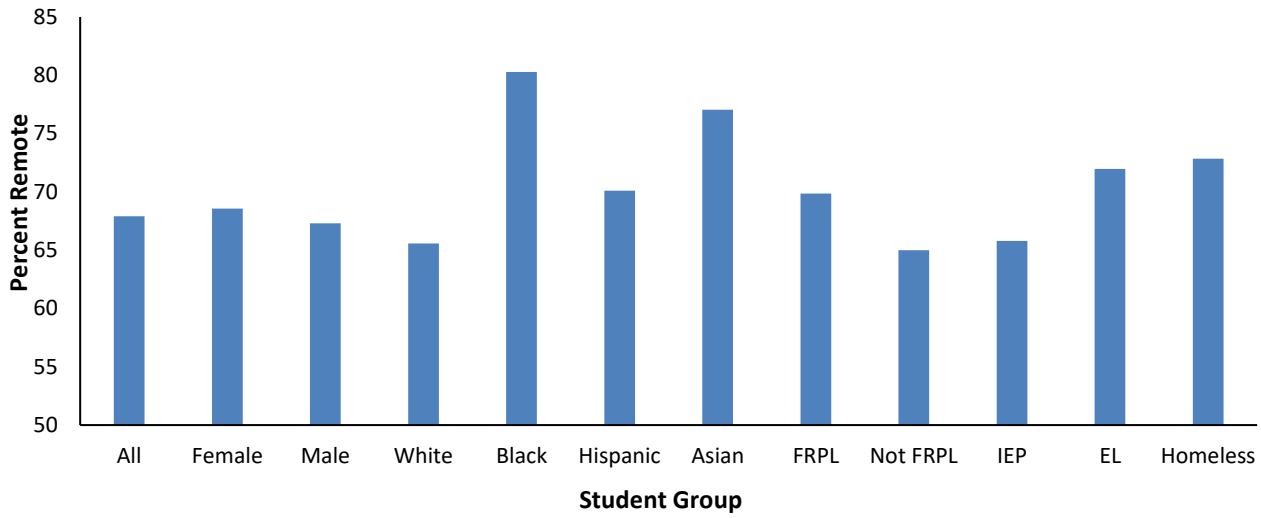
Grade Level

The average percentage of instructional days that were remote in 2021 increased steadily from the lower to the upper grades, from a low of 62 percent in kindergarten to a high of 75 percent in 12th grade. Factors associated with these differences include the fact that some districts opened elementary schools for in-person instruction before middle and high schools and that students in the upper grades may have been more likely than students in the lower grades to opt for remote options, even when in-person instruction was available.[a]

Student Demographic Characteristics or Program Eligibility

Figure H.1 shows that, statewide, remote learning rates for most student groups fell within several percentage points of the state average of 68 percent. Student groups with higher remote learning rates included black students (80 percent), Asian students (77 percent), homeless students (73 percent), and English Language learners (72 percent).

Figure H.1
Percent Of Instructional Days In Remote Mode
By Student Demographic Group Or Program Eligibility, 2021



Source: Staff analysis of data from the Kentucky Department of Education

Differences in remote learning rates shown in Figure H.1, above, appear to be based primarily on remote learning rates in which students were enrolled rather than preference of families for

[a] DPPs in several districts indicated to OEA that high school students elected to be remote more than elementary schools.

remote instruction, as has been suggested nationally.[1] Few differences exist within districts in the percentages of remote instruction of students from various groups compared with district averages. For example, the difference statewide between the percentage of instructional days that were remote for black students (80 percent) versus white students (66 percent) reflects the high proportion of black students enrolled in Jefferson and Fayette counties, which had remote instruction rates that were much higher than the state (93 percent and 77 percent, respectively). Within Jefferson County the remote instruction rates for black and white students was 93 percent and 92 percent, respectively. Within Fayette County the remote instruction rates of black and white students was 78 percent and 76 percent respectively.

Remote Learning Rates And School Poverty

Table H.1 shows that average remote instruction rates were greater in higher-poverty schools in which 76 percent or more of students were eligible for FRPL (average of 73 percent instructional days remote) than in lower-poverty schools in which less than 25 percent of students were FRPL-eligible (average of 54 percent instructional days remote.)

Figure H.1
Average Percentage of Instructional Days Remote
By School Percentage FRPL-Eligible Students

Percent Of FRPL-Eligible Students In School	Number Of Schools	Average Percentage Remote Instruction
0 to 25	33	54
26 to 50	178	64
51 to 75	623	63
76 to 100	286	73

Source: Staff analysis of data from the Kentucky Department of Education

[1] Shapiro, Eliza, Green, Erica, and Kim, Juliana. "Missing in School Reopening Plans: Black Families' Trust." *The New York Times,* Feb. 1, 2021.

Appendix I

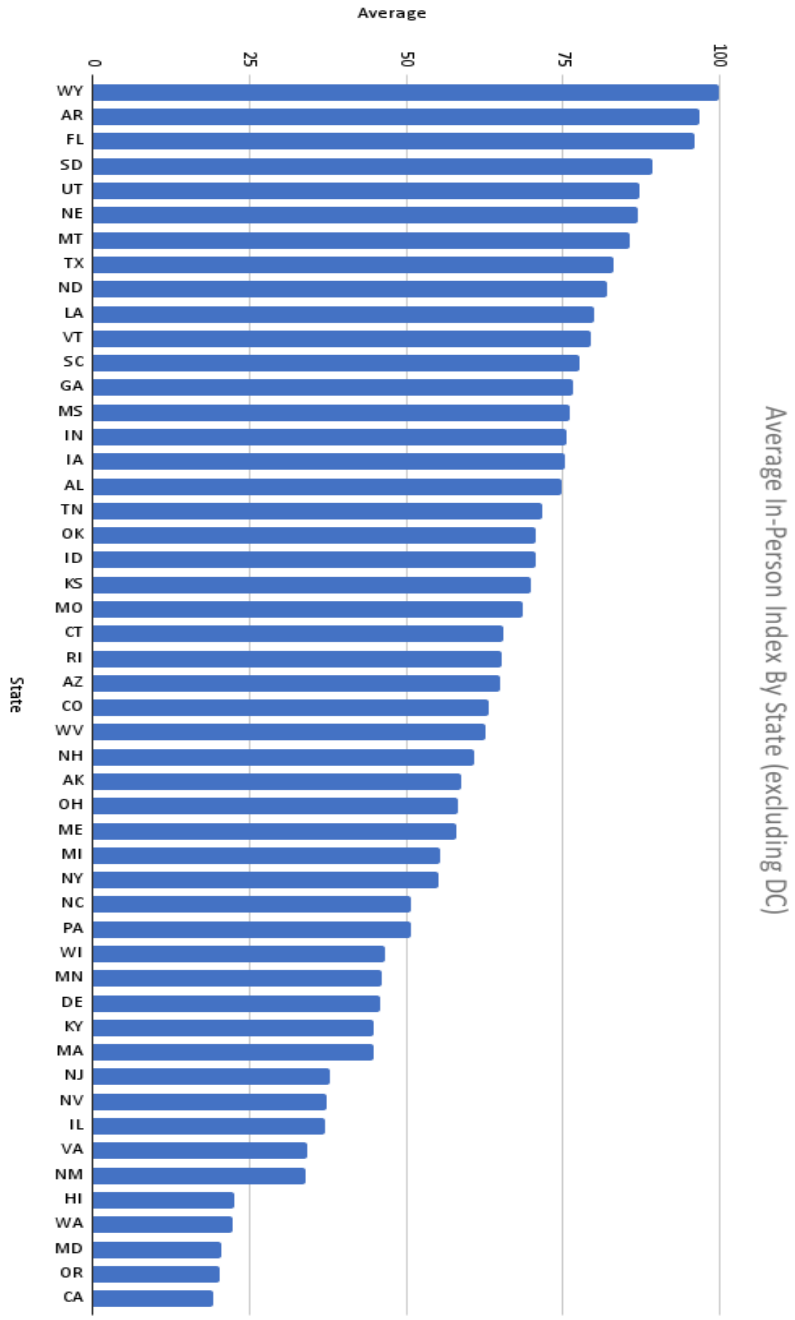
In-Person Learning Opportunities, Kentucky And Nation, 2021

Figure I.1 compares in-person learning opportunities by state in 2021. The comparison is based on an index developed by Burbio, a private software company that conducted ongoing analyses of calendar data in a representative sample of 1200 school districts nationwide. The index shows the approximate percentage of the school year in which students had the opportunity to learn in person[1] [a] The figures shows that Kentucky's in person learning index of 45 was among the bottom third of states on the in-person learning indicator developed by Burbio to show the percentage of the school year in which students had the opportunity to learn in person.[b] The figure shows that Kentucky's in-person learning indicator was higher than surrounding states Virginia and Illinois and lower than surrounding states Ohio, West Virginia, Missouri Tennessee, and Indiana.

[a] The company analyzed districts' learning plans throughout the year on publicly available sites awarding points for virtual, in-person or hybrid learning modes. Burbio categorized districts based on the dominant learning modes and assigned points proportionally when models varied by school level.

[b] Burbio's calculation would not have taken into account students who elected to remain remote in districts that were providing in person instruction.

Figure I.1
Average In-person Index, By State
2021



[1] Burbio. "Burbio's Methodology for Burbio K-12 School Opening Tracker". Web. Accessed July 15, 2021.

Appendix J

NTI And Special Populations

Early Grades

Students With IEPs

Pre-COVID NTI

Analysis of NTI plans 2017-2019 indicate that special education teachers or classroom teachers in collaboration with special education teachers were required to plan NTI to address the needs of students with IEPs. NTI plans required special education teachers to be available to assist students on NTI days but few (only 2 out of 13 analyzed) required these teachers actively to reach out to students.

COVID-Era NTI

The federal government did not issue any waivers on district's legal requirements to educate students with disabilities during the COVID-19 pandemic; districts were required to implement all aspects of students' IEPs, even those that are difficult to implement remotely. Districts did this by adapting remote instruction using devices such as screen readers; delivering other accommodation devices, as needed to students' homes; bringing small groups of students in to schools for targeted instruction, even when schools were closed for most students; developing more active roles for special education teachers than were required previously under NTI; and holding Admissions and Release Committee meetings remotely. [a]

Some national government and media reports have raised concerns that students with disabilities did not receive necessary services, including occupational, speech, and physical therapies. Some districts experienced difficulty adapting assistive technologies to online platforms. [1 2 34b] Others have raised concerns that the services received were not of the same quality as what students receive in person.[5 c]

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[a] For example, staff from the Kentucky School for the Blind and Kentucky School for the Deaf delivered specialized equipment to students' homes.

[b] According to a report by the New York State Comptroller, New York City reported in November, 2020, that almost half of the city's students with disabilities did not receive all components specified in their IEPs and half of teachers surveyed in New York state disagreed that they had the tools and skills necessary address the needs of students with disabilities in a remote/hybrid learning environment.

[c] A November, 2020 reports by the US Government Accountability Office noted, "concerns about students not receiving services in the same manner as they did prior to distance learning, including occupational and physical therapy that involved hands-on instruction from therapists or required specialized equipment unavailable in students' homes."

OEA has no systematic source of data on how services were provided to IEP students during remote learning and is not aware of any systematic concerns raised in the commonwealth about services received by special education students during the pandemic in the commonwealth. The number of requests for IDEA mediation or due process hearings filed by parents to KDE for the 2021 school year to date is less than the number that were filed in the preceding two years.[d6] . KDE advised districts to ensure that Admissions and Release Committees (ARCs) anticipate areas of the IEP that might be impossible to provide during remote instruction, and plan for compensatory services that are necessary when provisions of the IEP have not been met, for whatever reason. [e7]

Some reports have also suggested positive effects of remotely learning for some students with disabilities. These include a reduction in distractions for students who suffer from anxiety or other social disorders; increased one-on one time between special education teachers and students; the ability of special education teachers to provide real-time online assistance as needed; and an increase in communication between educators and families.[8] Students with social anxieties, in particular, may have had an easier time communicating virtually than they do in person.[f] Further, technological advances in assistive technologies made during the pandemic may be useful for students in regular instruction moving forward. These include LMSs that help students keep work organized; apps that allow students to send pictures to teachers; and software that embed annotation features, text-to-speech, and other comprehension supports into texts.[9]

[d] Parents may request mediation or due process for up to a year after the date a particular incident occurred in the 2021 school year.

[e] Districts are legally obligated to provide compensatory services when services outlined in IEPs have not been delivered. Compensatory education must be provided free of charge to parents. The need for and nature of compensatory services is determined by ARCs for individual students. Decisions about the need for compensatory education are made on a case-by-case basis.

[f] An article in the *Atlantic* (see endnotes) described challenges associated with remote instruction but also noted positive aspects. “The teachers have been delighted to find that these students, who usually have a very difficult time looking directly at people’s faces, find it much easier to do so through the computer screen. ‘We have their eyes looking right at us, and it’s not painful for them,” Murray said. “It’s beautiful.’ ”

Gifted and Talented Students

Pre-COVID NTI

District plans all require classroom teachers or gifted and talented teachers to incorporate elements from students' plans into NTI lessons. Data available for this report do not indicate how well these elements are incorporated in NTI or how gifted service plans were implemented in 2021.

English Language Learners

Pre-COVID NTI

District plans all require classroom teachers or EL teachers to incorporate elements from students' program service plans into lessons. Data available for this report do not indicate how well these elements are incorporated in NTI.

COVID-Era NTI

National reports as well as testimony in the commonwealth indicate that districts faced challenges engaging EL students during remote instruction.[10] In the commonwealth, staff addressed these challenges, including technology access and language barriers, by increasing home visits. [11]

Career and Technical Education

Pre-COVID NTI

Analysis of NTI plans indicate that districts coordinated with area technology centers (ATC)s in advance of NTI days to ensure there the provision for NTI for CTE students.[g] NTI for CTE students was mostly provided by paper packets, a format that is not ideally suited for the hands-on nature of CTE. Because of the shorter-term nature of NTI, remediation could be made when students returned in person.[12] District reapplications do not address quality of instruction provided to CTE students during NTI.

COVID-Era NTI

CTE is by nature a hands-on style of education that make it difficult to adapt to a virtual setting. Faced with extended periods of remote instruction in 2021, CTE teachers made substantial advances in adapting instruction for remote settings. While CTE teachers were initially able to connect with students using LMSs of home high schools, they were not initially able to provide the type of virtual instruction most appropriate for CTE; the software available on Chromebooks used by most students does not integrate with CTE-specific software for simulations and other CTE-specific applications. Concerned about the ability to provide appropriate instruction, districts offered fewer lab-heavy courses in 2021. [13]

[g] None of the plans analyzed addressed coordination with district-operated CTE centers.

Although centers encountered supply chain issues, they were eventually able to supply most students with necessary technology to engage with CTE-specific virtual learning. Some centers also provided hands-on kits, such as Styrofoam welding simulations and arranged for virtual field trips with local businesses. Challenges remained, however, in ensuring that students enrolled in dual credit courses were able to complete lab work required for course credit. [14h]

According to KDE staff, the quality of CTE during NTI in the future will be superior to the quality provided in the past if appropriate technology is available to students, ATCs and CTCs incorporate NTI into their annual planning; and CTE teachers continue to receive the professional supports they were provided during NTI in COVID-19. The virtual learning software, virtual field trips and mentorships that were implemented in 2021 for NTI also have broader applications for CTE students in rural settings or other "CTE desserts" who may not have access to the full range of CTE options. [15]

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[1] DiNapoli, Thomas. "Disruption To Special Education Services: Closing The Gap On Learning Loss From Covid-19." Office Of the New York State Comptroller. Sept., 2021, p. 1 and p. 12.
[2] Morris, Amanda. "Parents Of Students With Disabilities Try To Make Up for Lost Year." *New York Times,* Sept. 17, 2021.
[3] Hill, Faith. April 18, 2020. "The Pandemic Is A Crisis For Students With Special Needs." *The Atlantic.*
[4] Hill, Faith. April 18, 2020. "The Pandemic Is A Crisis For Students With Special Needs." *The Atlantic.*
[5] U.S. Government Accountability Office. "Distance Learning: Challenges Providing Services To K-12 English Learners And Students With Disabilities During Covid-19 (Distance Learning). GAO-21-43, Nov. 2020, pp 14-16.
[6] Allen, Todd, General Counsel, Kentucky Department of Education. "RE: EC data requests for OEA NTI report; SYs 2019-2021." July 29, 2021.
[7] Kentucky Department of Education, Office of Special Education and Early Learning. "FAPE and Compensatory Education." Microsoft Teams Event, April 22, 2021.
[7] According to a report by the New York State Comptroller
[8] Slone, Allison, Special Education Teacher, McBrayer Elementary School, Rowan County and Ex-Officio Member of the Kentucky Board of Education. Testimony to the Senate Education Committee, Jan. 7, 2021.
[9] Heyward, Georgia and Sean Gill. "Promising Practices Drive Progress: Closing Learning Gaps For Students With Disabilities." Center For Reinventing Public Education. June, 2021.
[10] US Department of Education, Office of Civil Rights. "Education In A Pandemic: The Disparate Impacts OF COVID-19 On America's Students." 2021.
[11] Sugg, Sally, Superintendent, Anderson County Schools. Testimony to the Senate Education Committee. Jan. 7, 2021.
[12] Horseman, David, Associate Commissioner, Kentucky Department of Education. Office of Career and Technical Education and Student Transition. Interview. July 28, 2021.
[13] Ibid
[14] Ibid
[15] Ibid.

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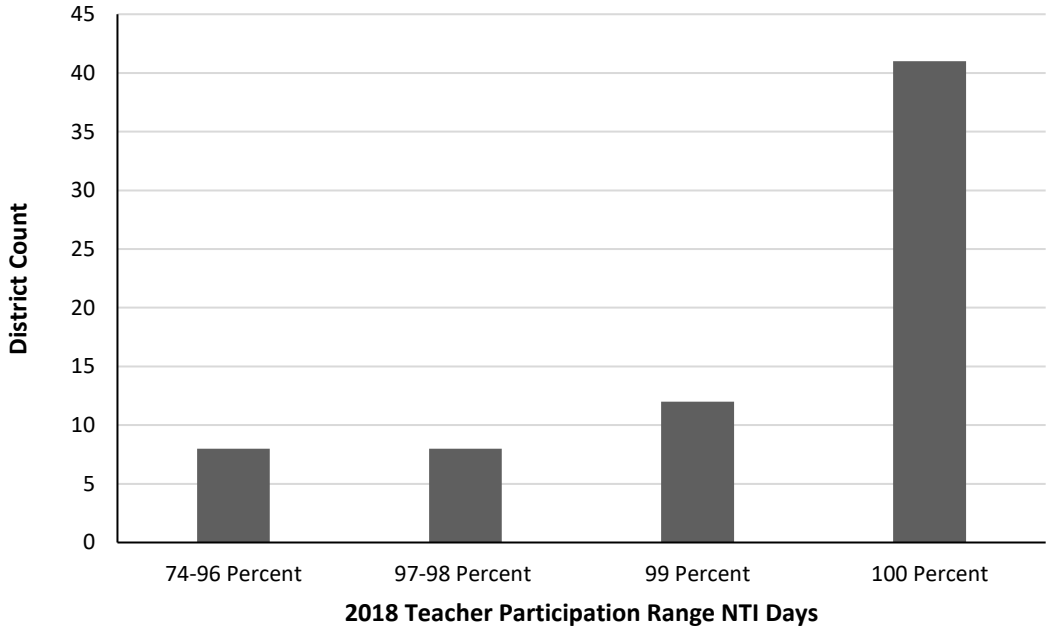
[h] These issues were addressed by bringing in small groups, when possible, and by providing summer remediation for students as necessary to complete industry certifications.

Appendix K

2018 Teacher Participation Rates On NTI Days

Figure
Teacher Participation Rate Groupings
For NTI Districts On NTI Days
2018 School Year



Appendix L

Opportunity To Learn Survey

Opportunity To Learn Questions

Question 28: When my school building was closed because of COVID-19, I was able to work with my teacher and classmates online.

Question 29: It was easy to use my device (such as computer, Chromebook or smartphone) to do assignments, quizzes and other schoolwork when my building was closed.

Question 30: When my school building was closed because of COVID-19, my teacher taught lessons almost every day using video (Zoom, Microsoft Teams, Google Meet/Classroom, or another program).

Question 31: When my school building was closed because of COVID-19, I watched a video recording from my teacher almost every day.

Question 32: My teachers were available when I needed help (such as through virtual office hours, email, chat).

Question 33: My schoolwork helped me learn new things this year.

Question 34: I feel good about what I learned during NTI.

Table L.1
Elementary School Results
For Opportunity To Learn Questions
KDE Administered Survey

Question	Percentage Agree/Strongly Agree Mean	Count Of Schools - Percentage Bands Agree/Strongly Agree						
		90-100	80-89	70-79	60-69	50-59	40-49	Less Than 40
Q28	90	451	234	16	0	0	0	0
Q29	77	14	240	374	69	4	0	0
Q30	94	595	80	23	3	0	0	0
Q31	78	84	259	223	100	29	4	2
Q32	92	525	174	2	0	0	0	0
Q33	95	682	19	0	0	0	0	0
Q34	86	198	425	72	6	0	0	0

Note: There were 701 elementary schools with students participating in the survey.
Source: Staff analysis conducted on data provided by KDE.

Table L.2
Middle School Results
For Opportunity To Learn Questions
KDE Administered Survey

Question	Percentage Agree/Strongly Agree Mean	Count Of Schools - Percentage Bands Agree/Strongly Agree						
		90-100	80-89	70-79	60-69	50-59	40-49	Less Than 40
Q28	81	32	171	100	10	1	1	0
Q29	72	2	42	152	105	13	1	0
Q30	88	170	91	36	12	4	2	0
Q31	66	3	32	93	108	58	12	9
Q32	88	120	185	10	0	0	0	0
Q33	80	17	156	122	20	0	0	0
Q34	63	0	11	57	134	95	17	1

Note: There were 315 middle schools with students participating in the survey.
Source: Staff analysis conducted on data provided by KDE.

Table L.3
High School Results
For Opportunity To Learn Questions
KDE Administered Survey

Question	Percentage Agree/Strongly Agree Mean	Count Of Schools - Percentage Bands Agree/Strongly Agree						
		90-100	80-89	70-79	60-69	50-59	40-49	Less Than 40
Q28	78	12	82	110	20	1	0	0
Q29	70	1	22	90	93	19	0	0
Q30	75	17	80	59	47	16	5	1
Q31	59	0	5	29	70	91	22	8
Q32	84	40	150	34	1	0	0	0
Q33	62	0	4	35	96	75	15	0
Q34	46	0	0	4	9	67	82	63

Note: There were 225 high schools with students participating in the survey.
Source: Staff analysis conducted on data provided by KDE.

Appendix M

Student Home Internet Access And School Poverty

As shown in Table .1, home internet decreases as student poverty increases. The average percentage of students reported by districts as having strong home internet access was much higher in districts in which 25 percent or less of students were FRPL eligible (96.8 percent) than in districts in which 76 percent or more of students were FRPL eligible (81.7 percent).

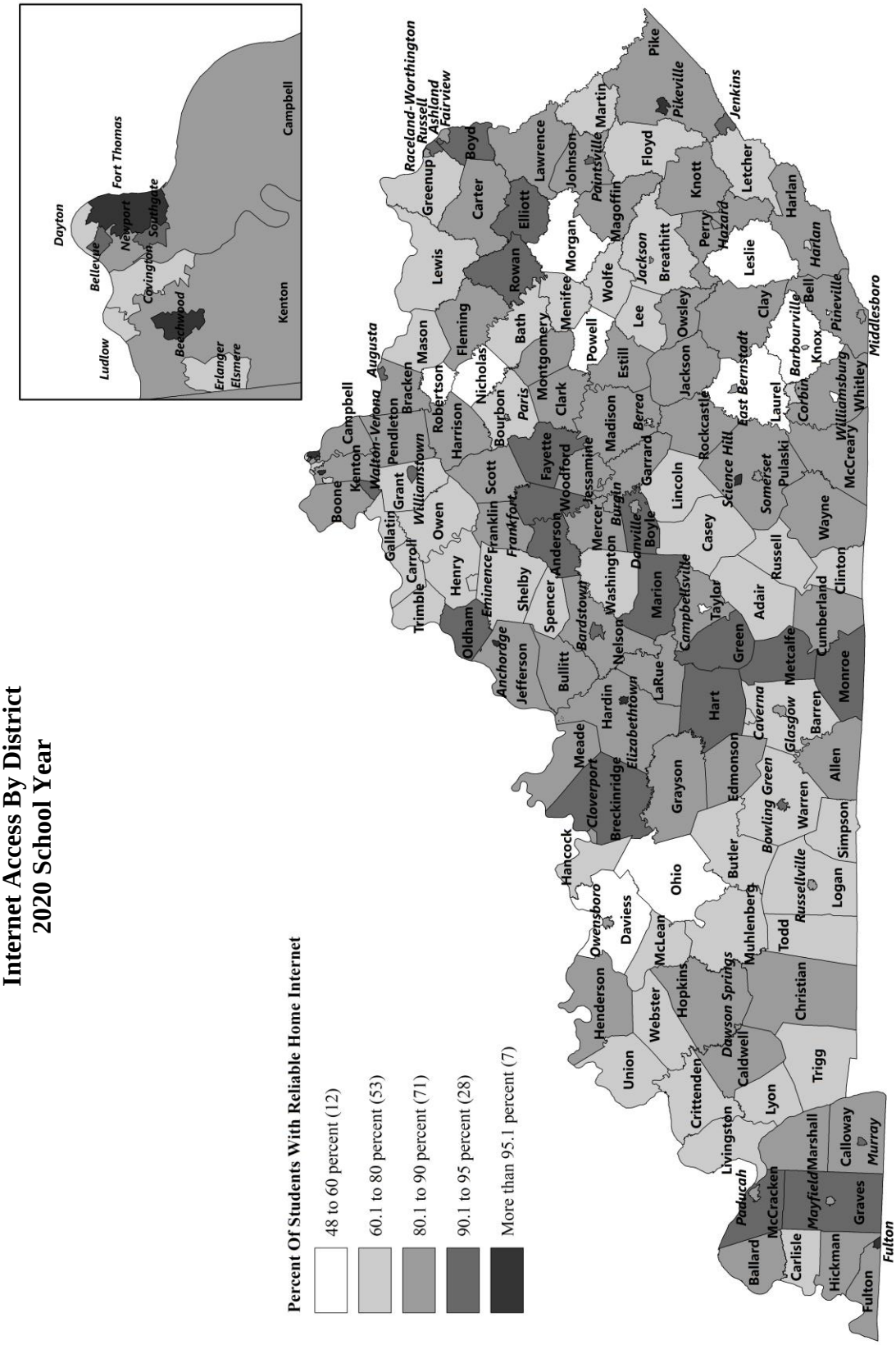
Table M.1
Percent of Students With Strong Home Internet Access
By District Percentage Of FRPL-Eligible Students, 2020

Percent Of FRPL-Eligible Students In District	Number Of Districts	Percentage "capable of having a good YouTube experience on home internet"
0-25	4	96.8%
26-50	15	90.2
51-75	122	81.0
76-100	30	81.7

Note: Strong home internet access is indicated by a student's capability to have "a good YouTube experience on home internet."
Source: Staff analysis of data from the Kentucky Department of Education

Figure M.1 shows the percentage of students with strong home internet access, by district, as reported by districts to KDE in the fall semester of the 2020 school year. This would have been the semester that immediately preceded widespread transition to remote instruction due to the COVID-19 pandemic. As described in Chapter 2, many districts took steps in the spring of the 2020 school year to address students' lack of home connectivity.

Figure M.1
Percent Of Students With Strong Home Internet Access By District
2020 School Year



Note: Strong home internet access is indicated by students being "capable of having a good YouTube experience on home internet."
Source: Staff analysis of data from the Kentucky Department of Education.

Appendix N

Number Of Schools By Level And Range of 2019 Attendance Rate And 2021 Participation Rate

Table N.1
Number Of Schools By Level And Range of 2019 Attendance Rate And 2021 Participation Rate

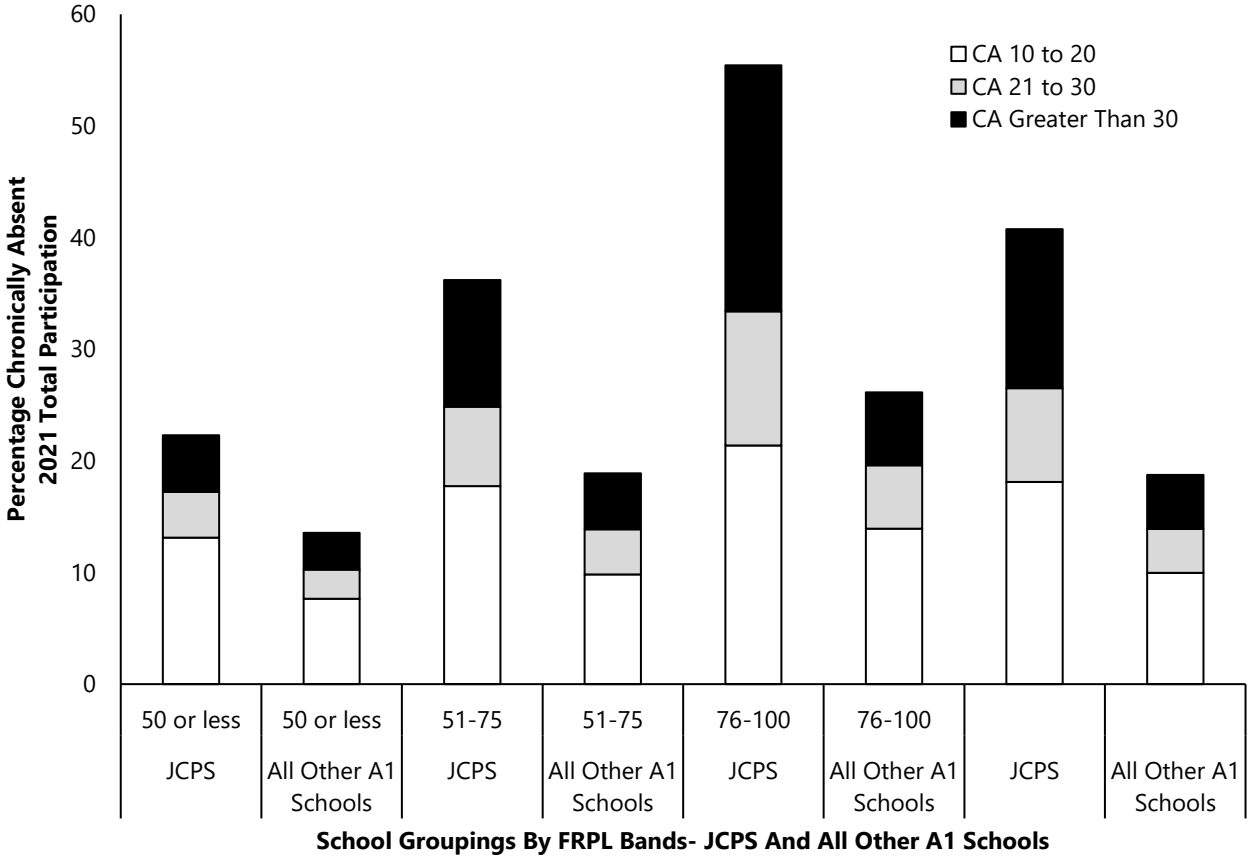
Percent Attendance Or Participation	Elementary Schools		Middle Schools		High Schools	
	2019 Attendance	2021 Remote Participation Rate	2019 Attendance	2021 Remote Participation Rate	2019 Attendance	2021 Remote Participation Rate
54-69		7		2		4
70-74		8		4		4
75-79		20		2		2
80-84		51		13		14
85-89	4	90	5	17	19	16
91-92	27	55	21	8	49	8
93-94	163	95	98	13	95	12
95-96	409	102	125	26	36	18
97-98	53	121	4	40	1	22
99-100		107		128		101
School Count	656	656	253	253	200	201

Source: Staff analysis of data from the Kentucky Department of Education.

Appendix O

Chronic Absence Rates Higher-poverty schools

Figure O.A
Chronic Absence Comparison
By Free/Reduced Lunch Percentage Bands
JCPS And All Other A1 Schools
2021 Total Participation



Source: Staff analysis conducted on data provided by KDE.

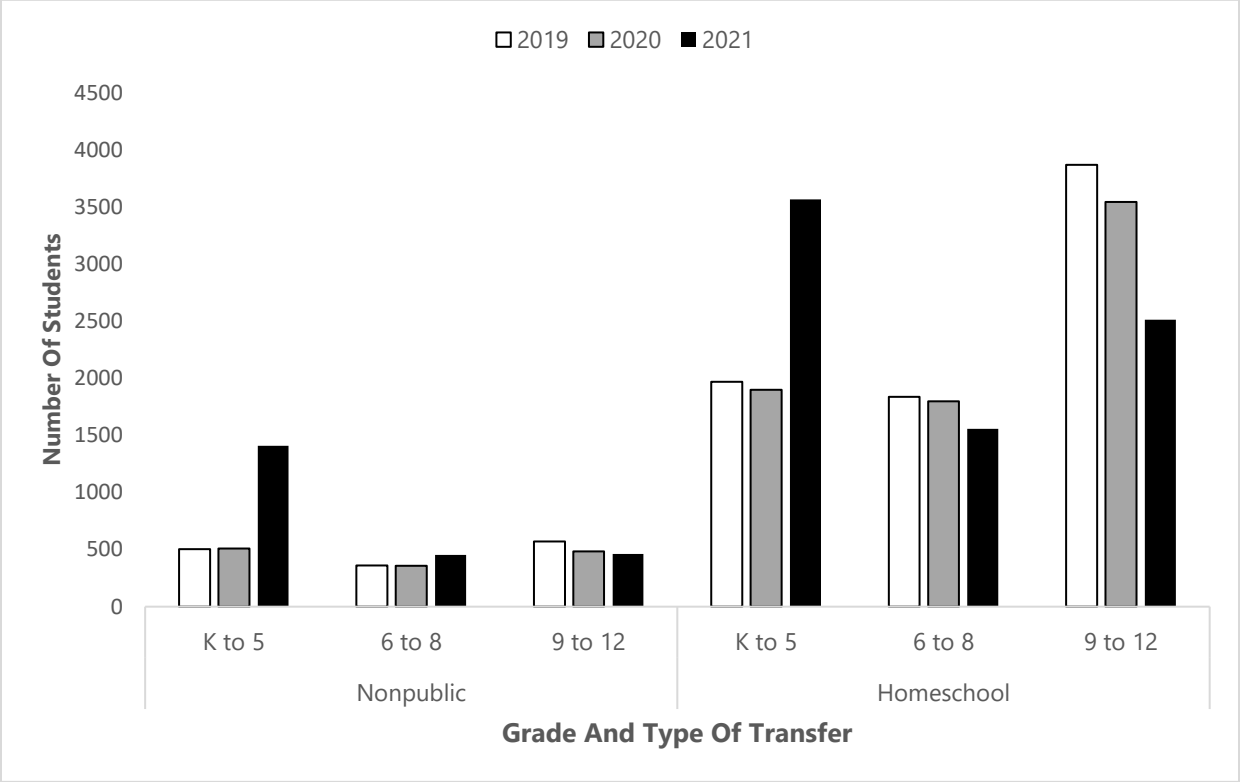
Appendix P

Enrollment Changes And Students Withdrawing To Nonpublic Schools Or Homeschools, 2021

Enrollment Changes 2020 To 2021. Enrollment data for 2021 show a drop of 1.5 percent from 2020 to 2021 in total public school enrollment. Enrollment drops in 2021 were explained primarily by decreases in the percentages of preschool children (19.9 percent), kindergarten (7.8 percent) and students in grades 1-5 (3.3 percent); student enrollment changed very little through the middle and upper grades. Kentucky enrollment data is consistent with national data. Nationally, enrollment dropped by about 3 percent overall and by 14 percent for kindergarten and preschool. [1]

Students Withdrawing To Private School Or Homeschool. Enrollment trends are mirrored by data shown in Figure P.A for students withdrawing to homeschool and private school. The number of students withdrawing to private school and to homeschool in grades k through 5 increased substantially in 2021. In contrast, the number of students in grades 6-8 that withdrew to private school increased only slightly and the number that withdrew to homeschool decreased. The number of students in grades 9-12 that withdrew to private school and homeschool decreased in 2021.

Figure P.A
Number of Students Withdrawing To Nonpublic Or Homeschool
By Grade Level, 2019-2021



Source: Staff analysis of data from the Kentucky Department of Education

[1] West, Martin and Lake, Robin. "How Much Have Students Missed Academically Because of the pandemic? A review of the Evidence to Date." Center for Reinventing Public Education, July, 2021. Web. Accessed Aug. 1, 2021, p. 7.

Appendix Q

NTI And Student Achievement Modeling

Statistical Modeling

Ordinary least squares regression models were used in order to gain further insight into the relationship between performance on math and reading assessments and nontraditional instruction (NTI) days in Kentucky schools. The models are structured according to the equations listed below, where the dependent variable in each model is either K-PREP or ACT scores in reading and math. The explanatory variables of note are years participating in NTI (*βNTIYrs)*, total number of NTI days (*βNTIDays)*, and weather days (*βWEATHER)*. The subgroup categories for race and ethnicity, eligibility for free or reduced-price lunch, participation in an individualized education program, having limited English proficiency, being a migrant student, and homeless students are represented (β*DEMO*), as well as performance on 2014 assessments (β*PRIOR*).[a] The residual error term (ε) finishes out the equation. Students from Leslie, Owsley, and Wolfe Counties, were left out of the calculations because they were part of the NTI pilot program.

Model 1: Assessment Scale Score = α + βNTIYrs + βNTIDays + ε
Model 2: Assessment Scale Score = α + βNTIYrs + βNTIDays + βWEATHER+ ε
Model 3: Assessment Scale Score = α + βNTIYrs + βNTIDays+ βWEATHER+ βDEMO + ε
Model 4: Assessment Scale Score = α + βNTIYrs + βNTIDays+ βWEATHER+ βDEMO +βPRIOR+ ε

Models 1 through 4 were constructed using a step-wise process to determine the percentage of the variance (R-squared in the tables below) explained by the various categories of explanatory variables relative to the dependent variable for each model.[b]

Table K.1 displays the association between the explanatory variables and 2018 7th- and 8th-grade K-PREP math scale scores. Model 1 shows a negative relationship between NTI days taken between 2015 and 2018 and math scale scores in 2018; however, there is a positive association with the numbers of years in the program. While statistically significant, these relationships represent 0.1 percent of the variance in 2018 test scores. Model 2 shows the same relationships and a positive association with additional weather days taken by school districts between 2015 and 2018. These relationships are similar in Model 3 where demographic attributes are added. Model 3 explains over 18 percent of the variance. The relationships between NTI days and years

[a] The demographic group controls include whether the student was African American, Asian, Hispanic, American Indian, Native Hawaiian or Pacific Islander, or other race, and the models also control for gender. For free or reduced-price lunch eligibility, participation in an individualized education program, receiving limited English proficiency services, and being identified as homeless or migrant, students' eligibility for those programs were examined from school years 2014 through 2019; if they were eligible for those services during that time period, they were identified as participating in that program or receiving that service. Figures K.5 and K.6 measure the impact of NTI on 3rd grade proficiency. Since those students had no prior assessment scores, their schools' mean performance on the 2014 3rd-grade reading and math K-PREP assessments were used.
[b] For instance, Model 1 in Table K.1 explained roughly 0.1 percent of the variance associated with 2018 7th- and 8th-grade K-PREP math scores, while Model 4 explained more than 46 percent of the variance.

of NTI and 2018 K-PREP math scale scores are no longer statistically significant once 2014 performance on math K-PREP assessments are taken into account. Model 4 explains more than 46 percent of the variance. From this model, it can be inferred that NTI has little to no effect on 2018 7th- and 8th-grade math performance.

Table K.2 displays the association between the explanatory variables and 2018 7th- and 8th-grade K-PREP reading scale scores. Model 1 shows a negative relationship between NTI days taken between 2015 and 2018 and reading scale scores in 2018; however, there is a positive association with the numbers of years in the program. While statistically significant, these relationships represent 0.1 percent of the variance in 2018 test scores. Model 2 shows the same relationships and a positive association with additional weather days taken by school districts between 2015 and 2018. While statistically significant, these relationships still represent less than 0.5 percent of the variance in 2018 test scores. These relationships are similar in Model 3 where demographic attributes are added, except that number of days NTI between 2015 and 2018 are no longer statistically significant. Model 3 explains over 19 percent of the variance. In Model 4, the relationship between years participating in NTI and 2018 reading scale scores is no longer statistically significant once 2014 performance on reading K-PREP assessments are taken into account. Number of NTI days has a small positive relationship with 2018 reading scale scores that is statistically significant Model 4 explains more than 41 percent of the variance. From this model, it can be inferred that NTI has little to no effect on 2018 7th- and 8th-grade reading performance.

Table K.3 displays the association between the explanatory variables and 2017 11th-grade ACT math scores. Model 1 shows a negative relationship between NTI days taken between 2015 and 2017 and 11th-grade ACT math scores in 2017; however, there is a positive association with the numbers of years in the program. While statistically significant, these relationships represent less than 0.4 percent of the variance in 2017 test scores. Model 2 shows the same relationships and a negative association with additional weather days taken by school districts between 2015 and 2017. While statistically significant, these relationships still represent less than 1.5 percent of the variance in 2017 math ACT scores. These relationships are similar in Model 3 where demographic attributes are added, except that number of years participating in NTI between 2015 and 2017 are no longer statistically significant. Model 3 explains over 20 percent of the variance. The relationship between years participating in NTI and 2017 math ACT scores is not statistically significant once 2014 performance on reading K-PREP assessments are taken into account. Number of NTI days has a small negative relationship with 2017 math ACT scores that is statistically significant. Model 4 explains more than 59 percent of the variance. From this model, it can be inferred that NTI has little to no effect on 2017 ACT math performance.

Table K.4 displays the association between the explanatory variables and 2017 11th-grade ACT reading scores. Model 1 shows a negative relationship between NTI days taken between 2015 and 2017 and ACT reading scores in 2017; however, there is a positive association with the numbers of years in the program. While statistically significant, these relationships represent 0.14 percent of the variance in 2017 ACT reading scores. Model 2 shows the same relationships and a negative association with additional weather days taken by school districts between 2015 and 2018. While statistically significant, these relationships still represent less than 0.8 percent of the variance in 2017 reading ACT scores. These relationships are similar in Model 3 where

demographic attributes are added. Model 3 explains over 17 percent of the variance. The relationship between both NTI variables and 2017 reading ACT scores are no longer statistically significant once 2014 performance on reading K-PREP assessments are taken into account. Model 4 explains more than 45 percent of the variance. From this model, it can be inferred that NTI has little to no effect on 2017 ACT reading performance.

Table K.5 displays the association between the explanatory variables and 2018 3rd-grade K-PREP math scale scores. Model 1 shows a negative relationship between NTI days taken between 2015 and 2018 and 3rd-grade math scale scores in 2018; however, there is a positive association with the numbers of years in the program. While statistically significant, these relationships represent less than 0.1 percent of the variance in 2018 test scores. Model 2 shows the same relationships and a positive association with additional weather days taken by school districts between 2015 and 2018. While statistically significant, these relationships still represent less than 0.1 percent of the variance in 2018 grade math scale scores. These relationships are similar in Model 3 where demographic attributes are added. Model 3 explains over 16 percent of the variance. The relationship between the NTI variables and 2018 math scale scores is no longer statistically significant once a student's school's 2014 performance on math K-PREP assessments are taken into account. Model 4 explains more than 18 percent of the variance. From this model, it can be inferred that NTI has little to no effect on 2018 3rd-grade math performance.

Table K.6 displays the association between the explanatory variables and 2018 3rd-grade K-PREP reading scale scores. Model 1 shows a positive relationship between the NTI variables and 2018 reading scale scores; these results were not statistically significant and represent less than 0.1 percent of the variance in 2018 test scores. Model 2 shows a non-statistically significant, negative, relationship between NTI days and 2018 3rd-grade K-PREP scores; a positive association between years participating in NTI and 3rd-grade reading K-PREP scores; and a positive association with additional weather days taken by school districts between 2015 and 2018. While statistically significant, these relationships still represent less than 0.3 percent of the variance in 2018 test scores. These relationships are similar in Model 3 where demographic attributes are added; however, the NTI variables are not statistically significant. Model 3 explains over 15 percent of the variance. The relationship between the NTI variables and 2018 reading scale scores are statistically significant once a student's school's 2014 performance on reading K-PREP assessments are taken into account; however, the effects are small. Number of NTI days has a positive effect, while number of years taking part in the NTI program has a negative effect. Model 4 explains more than 17 percent of the variance. From this model, it can be inferred that NTI has little to no effect on 2018 3rd-grade reading performance.

Table Q.1
Regression Output For K-PREP
Math Scale Scores
Grades 7 And 8, School Year 2018

	2018 K-PREP Math Scale Score Models							
	Model 1		Model 2		Model 3		Model 4	
Controls	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**
Number of days NTI	-0.162*	0.018	-0.190*	0.019	-0.110*	0.017	0.002	0.014
Number of years NTI	1.040*	0.107	1.253*	0.109	0.777*	0.099	0.142	0.083
Number of weather days			0.063*	0.006	0.086*	0.005	0.060*	0.005
Ever eligible for FRPL					-10.965*	0.133	-5.090*	0.116
Ever had an IEP					-10.237*	0.160	-3.337*	0.138
Ever identified as LEP					-8.735*	0.319	0.501	0.309
Ever homeless					-3.758*	0.212	-1.581*	0.181
Ever migrant					-2.520*	0.718	-1.338	0.687
Male					-1.049*	0.114	-1.522*	0.097
Hispanic					0.077	0.283	-0.245	0.257
Asian					11.378*	0.399	7.239*	0.368
Native Hawaiian					-3.062*	1.041	-0.858	1.028
Black or African American					-7.696*	0.190	-3.629*	0.164
Native American					0.603	0.564	-0.141	0.492
Other					3.616*	0.345	1.937*	0.295
2014 Math scaled score							0.564*	0.003
Intercept (α)*	209.396		207.857		218.769		95.165	
R-Squared	0.0010		0.0023		0.1818		0.4607	
Number of observations	96,046		96,046		96,045		85,618	

Note: The intercept (α) represents the control group mean 2018 K-PREP math scaled score for each of the models
Beta coefficients have been rounded to the nearest one-thousandth. FRPL= free or reduced-price lunch; IEP = individualized education pProgram; LEP = limited English proficiency; NTI = nontraditional instruction.
*Statistically significant at the $p < 0.01$ level.
Source: Staff analysis of data from the Kentucky Department of Education.

Table Q.2
Regression Output For K-PREP
Reading Scale Scores
Grades 7 And 8, School Year 2018

	2018 K-PREP Reading Scale Score Models							
	Model 1		Model 2		Model 3		Model 4	
Controls	Beta Coefficient	Standard Error	Beta Coefficient	Standard Error	Beta Coefficient	Standard Error	Beta Coefficient	Standard Error
Number of days NTI	-0.055*	0.166	-0.094*	0.017	-0.026	0.015	0.053*	0.013
Number of years NTI	0.720*	0.097	1.022*	0.098	0.515*	0.089	-0.072	0.076
Number of weather days			0.089*	0.005	0.095*	0.005	0.051*	0.004
Ever eligible for FRPL					-8.324*	0.119	-3.906*	0.106
Ever had an IEP					-10.731*	0.143	-5.791*	0.125
Ever identified as LEP					-11.667*	0.285	-0.431	0.283
Ever homeless					-3.762*	0.190	-2.126*	0.166
Ever migrant					-3.267*	0.644	-0.977	0.629
Male					-3.902*	0.102	-2.963*	0.088
Hispanic					1.049*	0.254	0.262	0.235
Asian					5.480*	0.358	4.647*	0.336
Native Hawaiian					-4.307*	0.932	-1.263	0.941
Black or African American					-6.963	0.170	-3.030*	0.151
Native American					0.917*	0.505	0.009	0.45
Other					4.245*	0.309	1.754*	0.27
2014 Math scaled score							0.467*	0.003
Intercept (α)*	212.186		210.012		221.150		118.683	
R-Squared	0.0011		0.0045		0.1961		0.4179	
Number of observations	96,046		96,046		96,045		85,618	

Note: The intercept (α) represents the control group mean 2018 K-PREP reading scale score for each of the models
Beta coefficients have been rounded to the nearest one-thousandth. FRPL= free or reduced-price lunch; IEP = individualized education program; LEP = limited English proficiency; NTI = nontraditional instruction.
*Statistically significant at the $p < 0.01$ level.
Source: Staff analysis of data from the Kentucky Department of Education.

Table Q.3
Regression Output For
ACT Math Scores, Grade 11
School Year 2017

	2017 ACT Math Score Models							
	Model 1		Model 2		Model 3		Model 4	
Controls	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**
Number of days NTI	-0.089*	0.008	-0.062*	0.008	-0.046*	0.008	-0.028*	0.005
Number of years NTI	0.297*	0.045	0.124*	0.046	0.040	0.041	-0.005	0.030
Number of weather days			-0.062*	0.003	-0.044*	0.003	-0.038*	0.002
Ever eligible for FRPL					-2.601*	0.047	-1.108*	0.034
Ever had an IEP					-3.701*	0.078	-1.233*	0.057
Ever identified as LEP					-2.682*	0.181	0.827*	0.131
Ever homeless					-0.610*	0.133	-0.146	0.095
Ever migrant					0.022	0.515	-0.109	0.369
Male					0.199*	0.043	0.301*	0.031
Hispanic					-0.380*	0.124	-0.245*	0.089
Asian					3.192*	0.168	1.334*	0.121
Native Hawaiian					0.657	0.500	0.519	0.359
Black or African American					-1.922*	0.074	-0.706*	0.054
Native American					-0.118	0.241	-0.175	0.173
Other					0.565*	0.158	0.228*	0.113
2014 Math scaled score							0.175*	0.001
Intercept (α)*	19.670		20.874		22.551		-15.842	
R-Squared	0.0035		0.0149		0.2088		0.5932	
Number of observations	37,502		37,502		37,502		37,502	

Note: The intercept (α) represents the control group mean 11th-grade ACT math score for each of the models
Beta coefficients have been rounded to the nearest one-thousandth. FRPL= free or reduced-price lunch; IEP = individualized education program; LEP = limited English proficiency; NTI = nontraditional instruction.
*Statistically significant at the $p < 0.01$ level.
Source: Staff analysis of data from the Kentucky Department of Education.

Table Q.4
Regression Output For ACT
Reading Scores, Grade 11
School Year 2017

	2017 Reading ACT Score Models							
	Model 1		Model 2		Model 3		Model 4	
Controls	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**
Number of days NTI	-0.079*	0.011	-0.054*	0.011	-0.034*	0.010	-0.015	0.008
Number of years NTI	0.340*	0.059	0.177*	0.060	0.062*	0.055	-0.054	0.045
Number of weather days			-0.058*	0.004	-0.037*	0.004	-0.037*	0.003
Ever eligible for FRPL					-3.068*	0.063	-1.650*	0.052
Ever had an IEP					-4.634*	0.104	-1.684*	0.087
Ever identified as LEP					-4.209*	0.242	1.496*	0.200
Ever homeless					-0.826*	0.177	-0.415*	0.144
Ever migrant					-0.394	0.689	-0.044	0.558
Male					-0.565*	0.058	0.229*	0.047
Hispanic					-0.119	0.166	-0.290*	0.135
Asian					2.468*	0.225	1.484*	0.182
Native Hawaiian					0.002	0.669	-0.381	0.542
Black or African American					-2.339*	0.100	-1.134*	0.081
Native American					-0.011	0.323	-0.133*	0.261
Other					1.312*	0.211	0.606	0.171
2014 Math scaled score							0.247*	0.002
Intercept (α)*	20.513		21.643		24.086		-29.828	
R-Squared	0.0014		0.0073		0.1750		0.4582	
Number of observations	37,501		37,501		37,501		37,501	

Note: The intercept (α) represents the control group mean 11th-grade ACT reading score for each of the models
Beta coefficients have been rounded to the nearest one-thousandth. FRPL= free or reduced-price lunch; IEP = individualized education program; LEP = limited English proficiency; NTI = nontraditional instruction.
*Statistically significant at the $p < 0.01$ level.
Source: Staff analysis of data from the Kentucky Department of Education.

Table Q.5
Regression Output For K-PREP
Math Scale Scores
Grade 3, School Year 2018

	2018 3rd Grade K-PREP Math Score Models							
	Model 1		Model 2		Model 3		Model 4	
Controls	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**	**Beta Coefficient**	**Standard Error**
Number of days NTI	-0.091*	0.026	-0.109*	0.026	-0.08*	0.024	0.026	0.024
Number of years NTI	0.653*	0.157	0.793*	0.161	0.514*	0.147	0.015	0.149
Number of weather days			0.033*	0.009	0.05*	0.008	0.058*	0.009
Ever eligible for FRPL					-10.268*	0.198	-9.032*	0.202
Ever had an IEP					-11.972*	0.237	-11.978*	0.238
Ever identified as LEP					-10.495*	0.463	-9.534*	0.466
Ever homeless					-2.884*	0.432	-2.439*	0.433
Ever migrant					-1.800	1.150	-2.704*	1.157
Male					1.914*	0.175	1.948*	0.176
Hispanic					0.704	0.419	1.147*	0.421
Asian					9.847*	0.616	8.902*	0.619
Native Hawaiian					-1.636	1.380	-1.076	1.395
Black or African American					-9.217*	0.285	-7.999*	0.290
Native American					-1.678	0.926	-1.308	0.929
Other					3.982*	0.407	3.462*	0.473
2014 School math score							0.389*	0.012
Intercept (α)*	209.352		208.472		217.926		135.137	
R-Squared	0.0004		0.0006		0.1666		0.1840	
Number of observations	49,632		49,632		49,632		47,872	

Note: The intercept (α) represents the control group mean 3rd-grade K-PREP math score for each of the models
Beta coefficients have been rounded to the nearest one-thousandth. FRPL= free or reduced-price lunch; IEP = individualized education program; LEP = limited English proficiency; NTI = nontraditional instruction.
*Statistically significant at the $p < 0.01$ level.
Source: Staff analysis of data from the Kentucky Department of Education.

Table Q.6
Regression Output For K-PREP Reading Scale Scores Grade 3, School Year 2018

	2018 3rd Grade K-PREP Reading Score Models							
	Model 1		Model 2		Model 3		Model 4	
Controls	Beta Coefficient	Standard Error	Beta Coefficient	Standard Error	Beta Coefficient	Standard Error	Beta Coefficient	Standard Error
Number of days NTI	0.014	0.024	-0.025	0.024	-0.012	0.022	0.073*	0.023
Number of years NTI	0.248	0.144	0.552*	0.148	0.218	0.137	-0.332*	0.138
Number of weather days			0.073*	0.008	0.064*	0.008	0.063*	0.008
Ever eligible for FRPL					-8.585*	0.183	-7.298*	0.188
Ever had an IEP					-9.186*	0.219	-9.218*	0.221
Ever identified as LEP					-12.067*	0.429	-10.866*	0.431
Ever homeless					-2.262*	0.400	-1.892*	0.400
Ever migrant					-1.986	1.065	-2.813*	1.071
Male					-1.883*	0.162	-1.873*	0.163
Hispanic					0.942	0.388	1.431*	0.390
Asian					3.081*	0.570	2.382*	0.573
Native Hawaiian					-1.184	1.278	-0.489	1.291
Black or African American					-9.701*	0.264	-7.924*	0.271
Native American					-0.475	0.858	-0.410	0.860
Other					4.994	0.435	3.922*	0.438
2014 School reading score							0.422*	0.013
Intercept (α)*	209.377		207.463		218.219		127.917	
R-Squared	0.0005		0.0021		0.1556		0.1757	
Number of observations	49,632		49,632		49,632		47,872	

Note: The intercept (α) represents the control group mean 3rd-grade K-PREP reading score for each of the models
Beta coefficients have been rounded to the nearest one-thousandth. FRPL= free or reduced-price lunch; IEP = individualized education program; LEP = limited English proficiency; NTI = nontraditional instruction.
*Statistically significant at the $p < 0.01$ level.
Source: Staff analysis of data from the Kentucky Department of Education.

Appendix R

Percent Of Students Participating In KSA Reading, 2021 By Student Demographic Or Program Group

Table S.1
Percent Of Students Participating In KSA Reading, 2021 By Student Demographic Or Program Group

	Elementary	Middle	High	Elementary	Middle	High
Student Group	**Participation Rate**			**Total Number Of Students Tested**		
All Students	89.2	84.4	76.6	140,090	154,780	51,716
Asian	86.7	81.9	73.1	2,817	2,657	959
FRPL-eligible	87	81.7	71.5	87,734	94,269	29,253
EL	86.2	83.9	70.2	8,799	5,422	1,894
Gifted and Talented	91.8	88.4	86.5	3,002	6,371	2,448
Hispanic	87.1	82.4	72.2	11,531	12,587	3,932
Homeless	86.8	81.2	68	4,192	4,153	1,273
Students with Disabilities (IEP)	88.4	82.4	74.3	22,910	20,954	5,606
Two Or More Races	86.9	82.4	74.5	7,140	7,194	1,946
White (non-Hispanic)	91.5	86.7	79.9	103,192	114,883	38,851

Appendix S

Change In Students Earning At Least One F
By Student Demographic Group Or Program Eligibility

Table S.1
Percentage of Students Earning At Least One F in English or Math
By Student Demographic Group or Program Eligibility
2019 and 2021

Student Group	Total Number Of Students	Percent Of Students Earning At Least One F			
		2019	2021	Difference 2021-2019	Ratio 2021/2019
Female	100,115	7.4%	15.2%	7.8	2.1
Male	105,943	13.5	19.9	6.4	1.5
FRPL-eligible	112,874	14.1	24.5	10.4	1.7
Not FRPL-eligible	93,184	6.1	9.3	3.2	1.5
Black	29,426	18.6	24.9	6.3	1.3
Hispanic	15,226	14.8	25.0	10.2	1.7
Asian	5,012	4.4	9.8	5.4	2.2
White	176,585	9.4	16.7	7.3	1.8
IEP	22,770	12.1	17.4	5.3	1.4
Homeless	5,133	19.0	32.3	13.2	1.7
EL	6,772	18.3	26.8	8.5	1.5
All Students	206,059	10.5	17.6	7.1	1.7

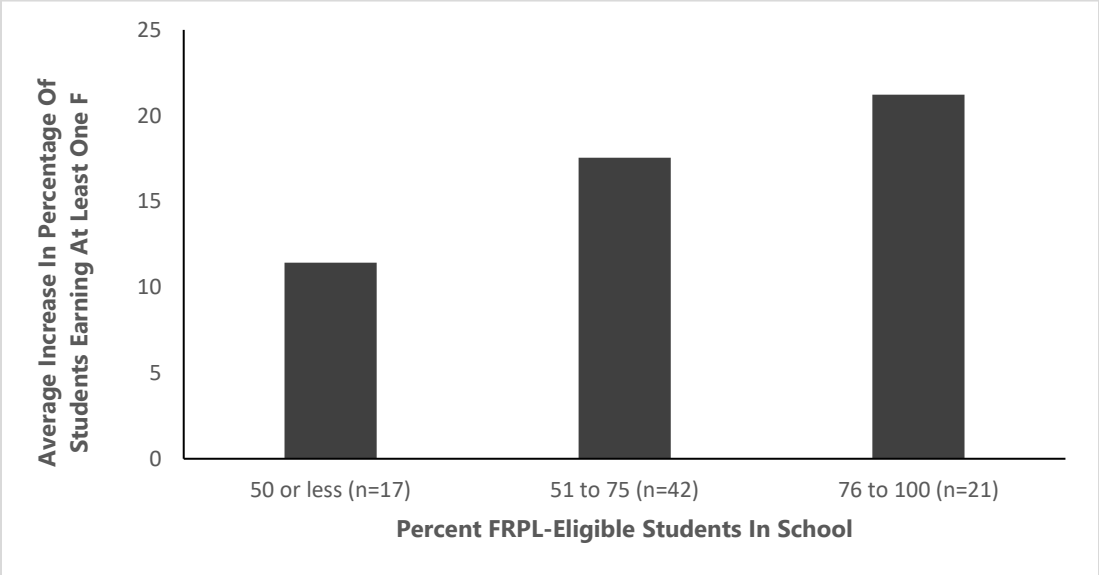
Source: Staff analysis of data from the Kentucky Department of Education

Appendix T

Students Earning At Least One F In Highest-Remote Schools

Figure T.1 shows that, among highest-remote schools (those with remote instruction rates exceeding 76 percent), increases in failing grades swere much greater in highest- versus lower-poverty schools.

Figure T.1
Average Increase Between 2019 And 2021
In Percentage Of Students Earning At Least One F
In Highest-Remote Schools
By School Percentage FRPL-Eligible Students



Note: Highest-remote schools are those with remote instruction rates of 76 percent or more.
Source: Staff analysis of data from the Kentucky Department of Education.