USEіT

report seven

Teachers' Beliefs About Technology-Related Professional Development

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USEiT

Use, Support, and Effect of Instructional Technology Study

Use, Support, and Effect of Instructional Technology (USEIT)

Report 7

Teachers' Beliefs About Technology-Related Professional Development

The Use, Support, and Effect of Instructional Technology (USEIT) Study employed common data collection methods across the 22 Massachusetts school districts to document the effects that different district-level technology support structures have on teaching and learning. Among several specific questions addressed in this study are the following:

- How and to what extent are teachers and students using technology in and out of the classroom?
- How much influence does district leadership, shared vision, provision of resources, and technical support have on the ways in which and extent to which teachers use technology for instructional purposes?
- How do different approaches to professional development impact instructional uses of technology?

During the 2001–2002 school year, information about district technology programs, teacher and student use of technology in and out of the classroom, and factors that influence these uses was collected through site visits, interviews, and surveys. In total, survey responses were obtained from 120 district-level administrators, 122 principals, 4,400 teachers, and 14,200 students in grades five, eight, and eleven. In addition, over 400 interviews with district leaders, principals, and technology specialists were conducted. And, during the 2002–2003 school year, four case studies and a study focusing on the relationship among student use of technology and academic performance are being conducted.

This report presents descriptive results of the surveys administered to teachers of mathematics, English language arts, science, and social studies in lower grades (K–5), middle grades (6–8), and upper grades (9–12). Some schools that participated in the survey are structured with Grade 6 in the "lower grade" school or Grade 9 in the "middle grade" school. In these cases, Grade 6 is grouped with the lower grade data and Grade 9 is grouped with the middle grade data. The purposes of this report are to familiarize readers with the data collected from teachers and to describe teachers' beliefs about professional development. In total, 2,894 mathematics, English language arts, science, and social studies teachers responded to this survey. Note that special education teachers and specialists (e.g., physical education, art teachers) are not included in this analysis. The findings presented in this report focus on the following issues related to teacher use of technology in school:

- Availability of Technology-Related Professional Development
- Participation in Technology-Related Professional Development
- Types of Technology-Related Professional Development That Would Be Beneficial
- Focus of Professional Development

Note that for each item presented in this report, an analysis of variance (ANOVA) was performed to test for statistically significant differences among grade levels.

Where appropriate, post-hoc comparisons were performed using Tukey's HSD method of adjusting alpha for multiple comparisons. For all references to statistically significant differences, alpha was equal to or less than 0.01.

Major Findings

- Teachers indicated that there are several types of technology-related professional development opportunities available in their schools. Workshops and seminars run by district personnel were reportedly the most available type of professional development and online or web-based training were reportedly the least available type of professional development. A higher percentage of lower grade and middle grade teachers as compared to upper grade teachers indicated that technology-related professional development was available to them.

- Although several types of technology-related professional development were reportedly available to teachers, most teachers did not participate in these opportunities within the last year. A higher percentage of lower grade and middle grade teachers as compared to upper grade teachers reported that they participated in technology-related professional development within the past year.

- When availability of professional development was compared to participation in professional development there was the least difference between availability and participation in online or web-based training and individual or group release time for technology-related professional development. All of which were reportedly not widely available. The greatest difference between availability and participation was in district or school sponsored courses (over several weeks) and workshops and seminars run by district personnel. Both of which were reportedly generally available, but not widely participated in.

- When teachers were asked to indicate what kinds of professional development would be most beneficial to them, teachers across all three grade levels agreed that of the surveyed forms of professional development managing their computer desktop would be least beneficial and integrating technology with classroom activities would be most beneficial. Across all three grade levels, teachers' responses differed the most on the integrating technology with student writing item. A higher percentage of lower grade teachers as compared to middle grade and upper grade teachers reported that professional development that focuses on integrating technology with student writing would be beneficial.

Availability of Technology-Related Professional Development

This section presents results for 10 items that asked teachers to indicate which types of technology-related professional development opportunities were available to educators in their schools. Teachers were asked to select all that apply.

Figure 1 provides information about the percentage of teachers who indicated that technology-related workshops and seminars run by an outside source were available to educators in their schools. Across all three grade levels, the majority of teachers indicated that technology-related workshops and seminars run by an outside source were available to educators in their schools. Between 56.8% and 59.9% of teachers indicated that technology-related workshops and seminars run by an outside source were available to educators in their schools, while between 40.1% and 43.2% indicated that technology-related workshops and seminars run by an outside source were not available to educators in their schools. There were no significant differences in responses across grade levels.

Figure 1: **Which types of technology-related professional development opportunities are available to educators in your school (select all that apply)?**

Workshops and seminars; run by an outside source

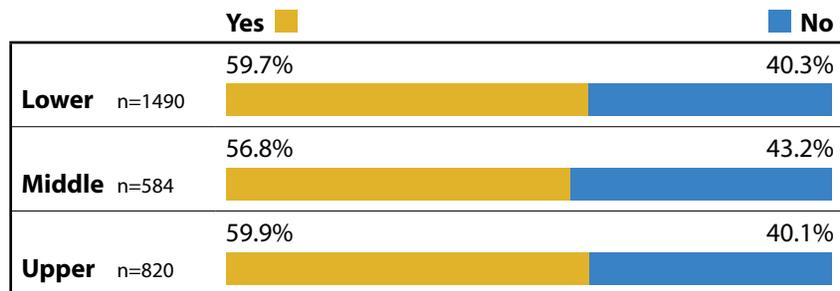|	Yes	No
Lower n=1490	59.7%	40.3%
Middle n=584	56.8%	43.2%
Upper n=820	59.9%	40.1%

Figure 2 provides information about the percentage of teachers who indicated that technology-related workshops and seminars run by district personnel were available to educators in their schools. Across all three grade levels, the vast majority of teachers indicated that technology-related workshops and seminars run by district personnel were available to educators in their schools. Between 79.1% and 91.7% of teachers indicated that technology-related workshops and seminars run by district personnel were available to educators in their schools, while between 8.3% and 20.9% indicated that technology-related workshops and seminars run by district personnel were not available to educators in their schools. There were significant differences in responses across all three grade levels, with a higher percentage of lower grade teachers as compared to middle grade and upper grade teachers reporting that technology-related workshops and seminars run by district personnel were available to educators in their schools and a lower percentage of upper grade teachers as compared to lower grade and middle grade teachers reporting that technology-related workshops and seminars run by district personnel were available to educators in their schools.

Figure 2: **Which types of technology-related professional development opportunities are available to educators in your school (select all that apply)?**

Workshops and seminars; run by district personnel

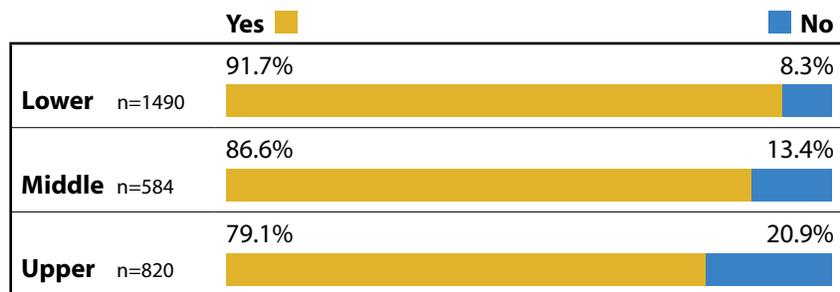|	Yes	No
Lower n=1490	91.7%	8.3%
Middle n=584	86.6%	13.4%
Upper n=820	79.1%	20.9%

Figure 3 provides information about the percentage of teachers who indicated that technology-related university or college course work supported by the district in whole or in part was available to educators in their schools. Across all three grade levels, the majority of teachers indicated that technology-related university or college course work supported by the district was not available to educators in their schools. Between 37.1% and 41.1% of teachers indicated that technology-related university or college course work supported by the district was available to educators in their schools, while between 58.9% and 62.9% of teachers indicated that technology-related university or college course work supported by the district was not available to educators in their schools. There were no significant differences in responses across grade levels.

Figure 3: **Which types of technology-related professional development opportunities are available to educators in your school (<u>select all that apply</u>)?**

University or college course work supported by the district in whole or in part
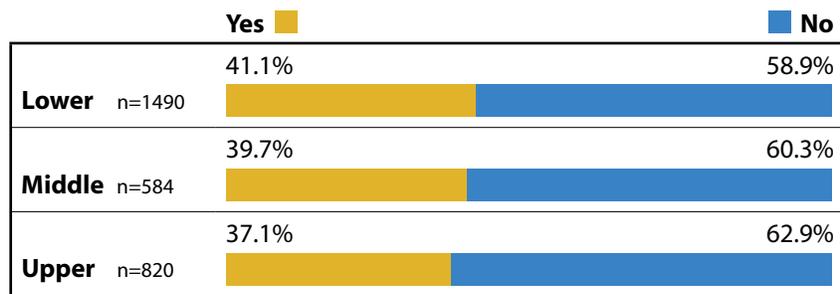

Figure 4 provides information about the percentage of teachers who indicated that technology-related mentor/colleagues were available to educators in their schools. Across all three grade levels, the majority of teachers indicated that technology-related mentor/colleagues were not available to educators in their schools. Between 42.0% and 44.4% of teachers indicated that technology-related mentor/colleagues were available to educators in their schools, while between 55.6% and 58.0% indicated that technology-related mentor/colleagues were not available to educators in their schools. There were no significant differences in responses across grade levels.

Figure 4: **Which types of technology-related professional development opportunities are available to educators in your school (<u>select all that apply</u>)?**
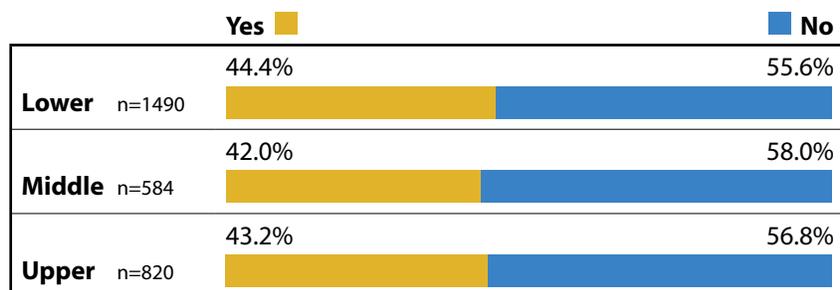
Mentor/colleague

Figure 5 provides information about the percentage of teachers who indicated that the opportunity to attend technology-related conferences was available to educators in their schools. Between 46.1% and 52.1% of teachers indicated that the opportunity to attend technology-related conferences was available to educators in their schools, while between 47.9% and 53.9% indicated that the opportunity to attend technology-related conferences was not available to educators in their schools. There were no significant differences in responses across grade levels.

Figure 5: **Which types of technology-related professional development opportunities are available to educators in your school (<u>select all that apply</u>)?**

Attending conferences

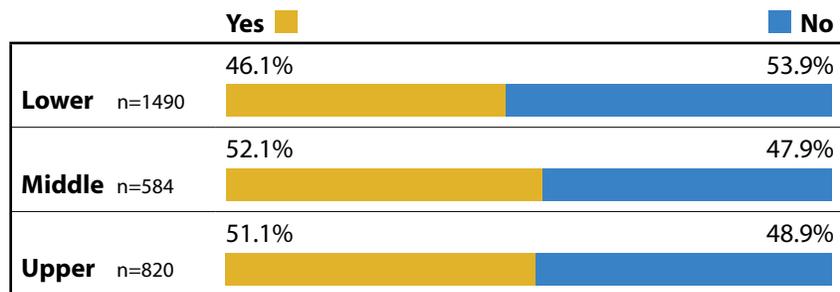|	Yes	No
Lower n=1490	46.1%	53.9%
Middle n=584	52.1%	47.9%
Upper n=820	51.1%	48.9%

Figure 6 provides information about the percentage of teachers who indicated that district or school sponsored courses (over several weeks) related to technology were available to educators in their schools. Across all three grade levels, the majority of teachers indicated that district or school sponsored courses related to technology were available to educators in their schools. Between 52.1% and 68.0% of teachers indicated that district or school sponsored courses related to technology were available to educators in their schools, while between 32.0% and 47.9% indicated that district or school sponsored courses related to technology were not available to educators in their schools. A significantly higher percentage of lower grade and middle grade teachers as compared to upper grade teachers indicated that district or school sponsored courses (over several weeks) related to technology were available to educators in their schools.

Figure 6: **Which types of technology-related professional development opportunities are available to educators in your school (<u>select all that apply</u>)?**

District or school sponsored courses (over several weeks)

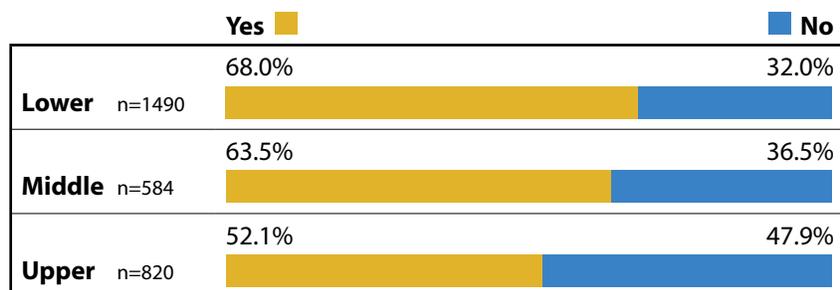|	Yes	No
Lower n=1490	68.0%	32.0%
Middle n=584	63.5%	36.5%
Upper n=820	52.1%	47.9%

Figure 7 provides information about the percentage of teachers who indicated that technology-related online or web-based professional development was available to educators in their schools. Across all three grade levels, the vast majority of teachers indicated that online or web-based professional development was not available to educators in their schools. Between 18.4% and 23.5% of teachers indicated that online or web-based professional development was available to educators in their schools, while between 76.5% and 81.6% indicated that online or web-based professional development was not available to educators in their schools. There were no significant differences in responses across grade levels.

Figure 7:   **Which types of technology-related professional development opportunities are available to educators in your school (select all that apply)?**

Online or web-based professional development

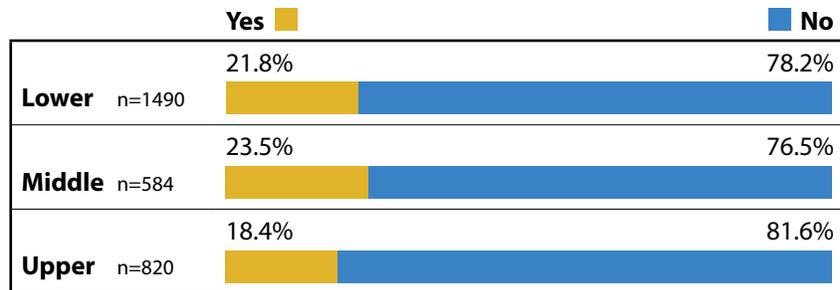|	Yes	No
Lower n=1490	21.8%	78.2%
Middle n=584	23.5%	76.5%
Upper n=820	18.4%	81.6%

Figure 8 provides information about the percentage of teachers who indicated that one-on-one or group training with technology staff was available to educators in their schools. Between 35.6% and 58.2% of teachers indicated that one-on-one or group training with technology staff was available to educators in their schools, while between 41.8% and 64.4% indicated that one-on-one or group training with technology staff was not available to educators in their schools. There were significant differences in responses across all three grade levels, with a higher percentage of lower grade teachers as compared to middle grade and upper grade teachers reporting that one-on-one or group training with technology staff was available to educators in their schools and a lower percentage of upper grade teachers as compared to lower grade and middle grade teachers reporting that one-on-one or group training with technology staff was available to educators in their schools.

Figure 8:   **Which types of technology-related professional development opportunities are available to educators in your school (select all that apply)?**

One-on-one or group training with technology staff

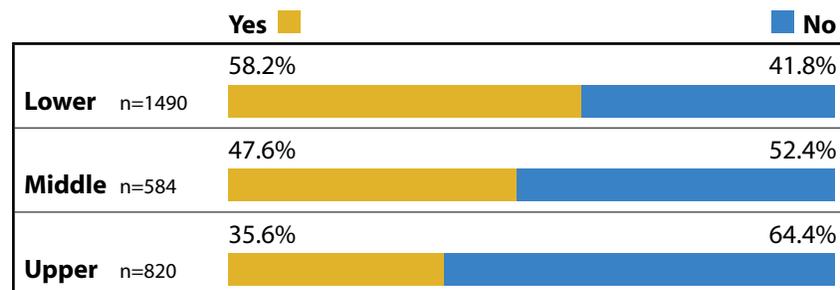|	Yes	No
Lower n=1490	58.2%	41.8%
Middle n=584	47.6%	52.4%
Upper n=820	35.6%	64.4%

Figure 9 provides information about the percentage of teachers who indicated that release time for department or grade-level planning related to technology was available to educators in their schools. Across all three grade levels, the vast majority of teachers indicated that release time for department or grade-level planning related to technology was not available to educators in their schools. Between 22.1% and 29.6% of teachers indicated that release time for department or grade-level planning related to technology was available to educators in their schools, while between 70.4% and 77.9% indicated that release time for department or grade-level planning related to technology was not available to educators in their schools. A significantly higher percentage of middle grade teachers as compared to upper grade teachers reported that release time for department or grade-level planning was available.

Figure 9:   **Which types of technology-related professional development opportunities are available to educators in your school (select all that apply)?**

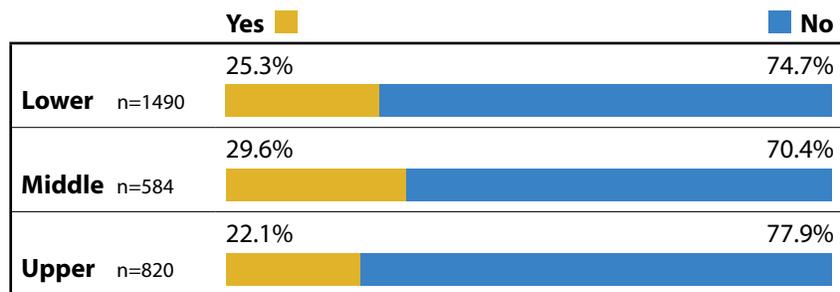**Release time for department or grade level planning related to technology**

Figure 10 provides information about the percentage of teachers who indicated that release time for individual professional development related to technology was available to educators in their schools. Across all three grade levels, the majority of teachers indicated that release time for individual professional development related to technology was not available to educators in their schools. Between 22.3% and 28.8% of teachers indicated that release time for individual professional development related to technology was available to educators in their schools, while between 71.2% and 77.7% indicated that release time for individual professional development related to technology was not available to educators in their schools. There were no significant differences in responses across grade levels.

Figure 10:   **Which types of technology-related professional development opportunities are available to educators in your school (select all that apply)?**

Release time for individual professional development related to technology
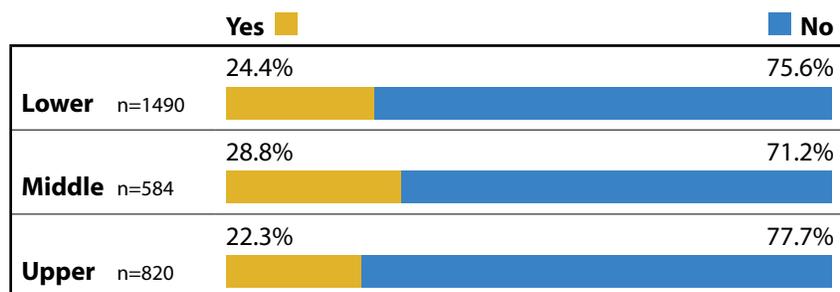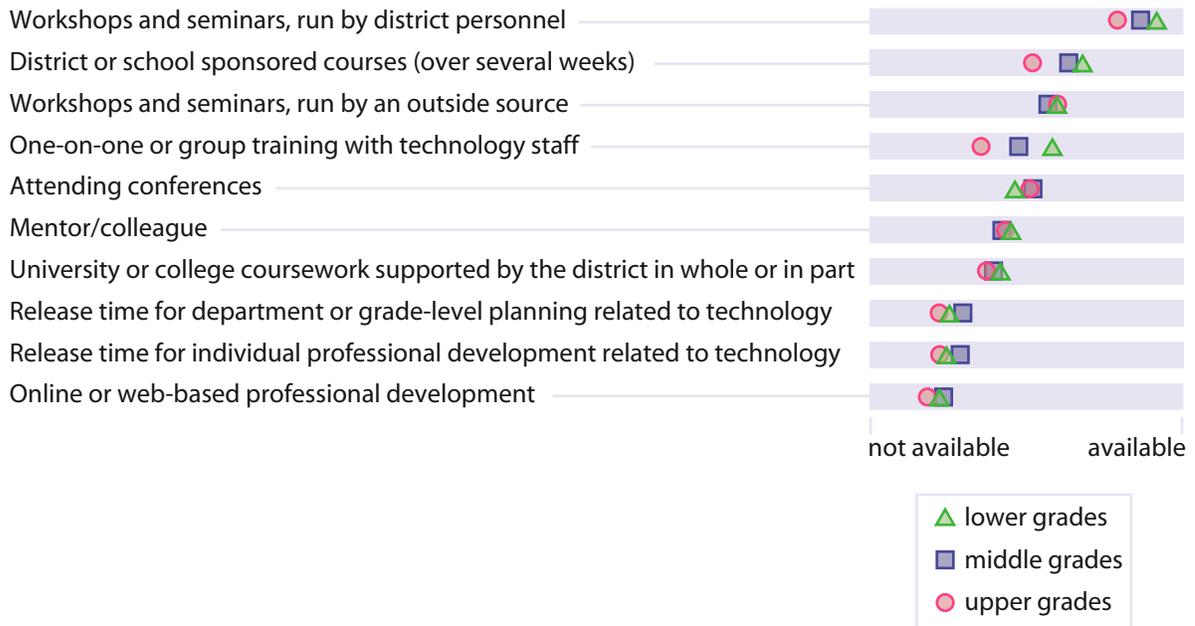
Figure 11 provides summary information for the 10 items that asked teachers to indicate which types of technology-related professional development opportunities were available to educators in their schools. Based on the average score of teachers' responses, teachers across all three grade levels agreed that workshops and seminars run by district personnel were more available and online or web-based professional development were less available than any of the other surveyed forms of professional development.

Responses to the item regarding one-on-one or group training with technology staff differed the most across grade levels. One-on-one or group training with technology staff was reportedly more available for lower grade teachers than middle grade teachers and more available for middle grade teachers than upper grade teachers. Overall, lower grade and middle grade teachers reported that the technology-related professional development opportunities surveyed were more available than the upper grade teachers reported them to be.

Figure 11:   Summary of Availability of Technology-Related Professional Development

Participation in Technology-Related Professional Development

This section presents results for 10 items that asked teachers to indicate which types of technology-related professional development opportunities they participated in within the last year. Teachers were asked to select all that apply.

Figure 12 provides information about the percentage of teachers who reported that they participated in technology-related workshops and seminars run by an outside source within the past year. Across all three grade levels, the vast majority of teachers reported that they did not participate in technology-related workshops and seminars run by an outside source within the past year. Between 19.8% and 23.5% of teachers reported that they participated in technology-related workshops and seminars run by an outside source, while between 76.5% and 80.2% reported that they did not participate in technology-related workshops and seminars run by an outside source within the past year. There were no significant differences in responses across grade levels.

Figure 12: **In which of these opportunities did you personally participate within the last year?**

Workshops and seminars; run by an outside source

Yes ▮   No ▮

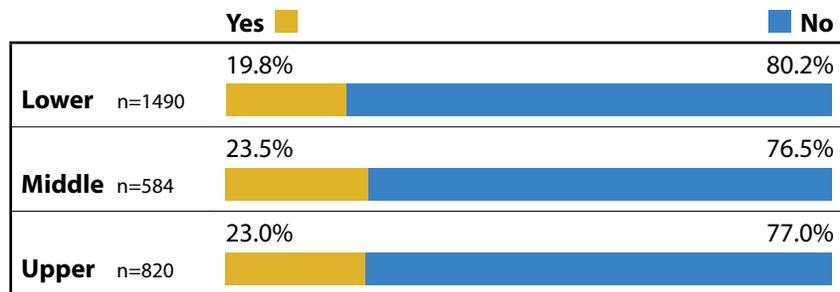|		Yes	No
Lower	n=1490	19.8%	80.2%
Middle	n=584	23.5%	76.5%
Upper	n=820	23.0%	77.0%

Figure 13 provides information about the percentage of teachers who reported that they participated in technology-related workshops and seminars run by district personnel within the past year. Between 35.5% and 53.6% of teachers reported that they participated in technology-related workshops and seminars run by district personnel, while between 46.4% and 64.5% reported that they did not participated in technology-related workshops and seminars run by district personnel within the past year. A significantly higher percentage of lower grade and middle grade teachers as compared to upper grade teachers reported that they participated in technology-related workshops and seminars run by district personnel within the past year.

Figure 13: **In which of these opportunities did you personally participate within the last year?**

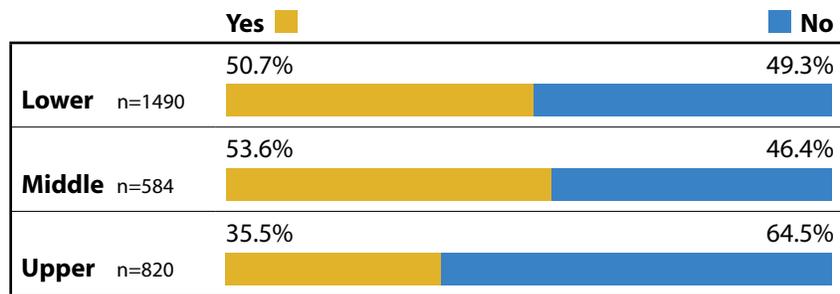**Workshops and seminars; run by district personnel**

Figure 14 provides information about the percentage of teachers who reported that they participated in technology-related university or college course work supported by the district in whole or in part within the past year. Across all three grade levels, the vast majority of teachers reported that they did not participate in technology-related university or college course work supported by the district within the past year. Between 6.7% and 10.3% of teachers reported that they participated in technology-related university or college course work supported by the district, while between 89.7% and 93.3% reported that they did not participate in technology-related university or college course work supported by the district within the past year. There were no significant differences in responses across grade levels.

Figure 14: **In which of these opportunities did you personally participate within the last year?**

University or college course work supported by the district in whole or in part
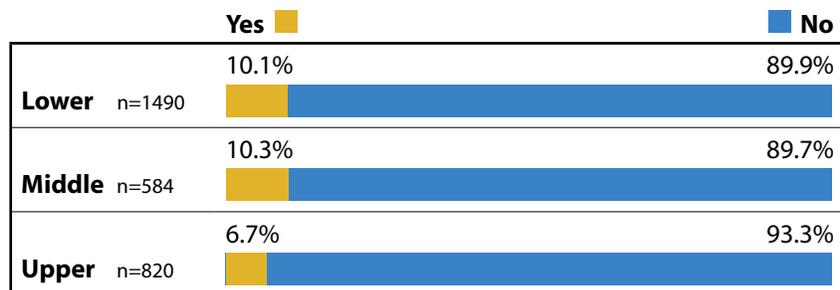
Figure 15 provides information about the percentage of teachers who reported that they participated in a technology-related mentor/colleague program within the past year. Across all three grade levels, the vast majority of teachers reported that they did not participate in a technology-related mentor/colleague program within the past year. Between 21.2% and 22.1% of teachers reported that they participated in a technology-related mentor/colleague program within the past year, while between 77.9% and 78.8% reported that they did not participate in a technology-related mentor/colleague program within the past year. There were no significant differences in responses across grade levels.

Figure 15:   **In which of these opportunities did you personally participate within the last year?**
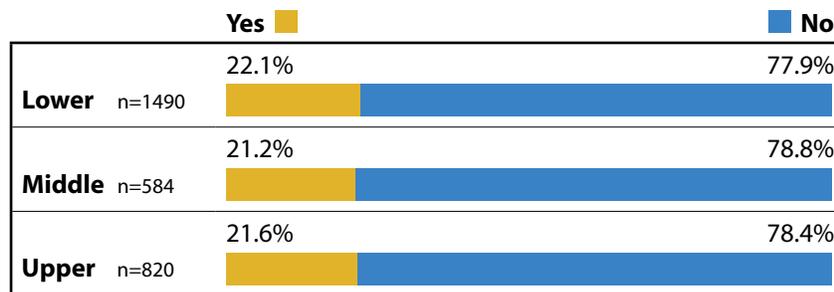
Mentor/colleague

Figure 16 provides information about the percentage of teachers who reported that they attended technology-related conferences within the past year. Across all three grade levels, the vast majority of teachers reported that they did not attend a technology-related conference within the past year. Between 9.4% and 15.8% of teachers reported that they attended a technology-related conference within the past year, while between 84.2% and 90.6% reported that they did not attend a technology-related conference. A significantly higher percentage of middle grade and upper grade teachers as compared to lower grade teachers reported that they attended a technology-related conference within the past year.

Figure 16:   **In which of these opportunities did you personally participate within the last year?**
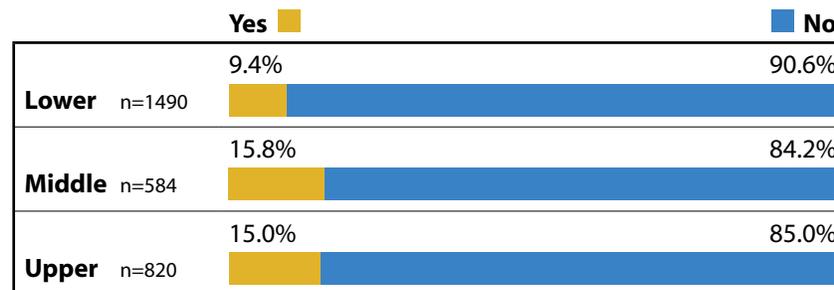
Attending conferences

Figure 17 provides information about the percentage of teachers who reported that they participated in district or school sponsored courses (over several weeks) related to technology within the past year. Across all three grade levels, the vast majority of teachers reported that they did not participate in district or school sponsored courses related to technology within the past year. Between 15.2% and 24.5% of teachers reported that they participated in district or school sponsored courses related to technology within the past year, while between 75.5% and 84.8% reported that they did not participate in district or school sponsored courses related to technology. A significantly higher percentage of lower grade and middle grade teachers as compared to upper grade teachers reported that they participated in district or school sponsored courses (over several weeks) related to technology within the past year.

Figure 17: **In which of these opportunities did you personally participate within the last year?**

District or school sponsored courses (over several weeks)

Yes ▢   No ▮

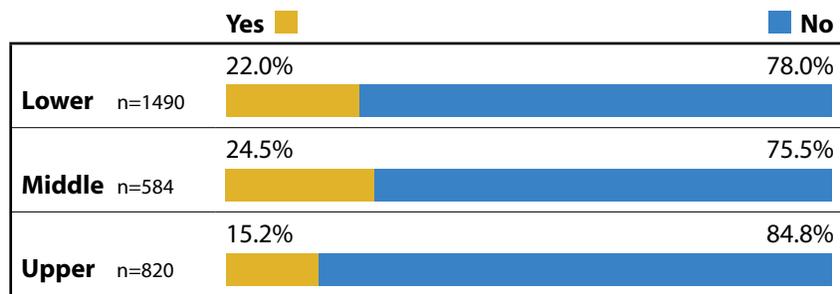|		
Lower n=1490	22.0%	78.0%
Middle n=584	24.5%	75.5%
Upper n=820	15.2%	84.8%

Figure 18 provides information about the percentage of teachers who reported that they participated in online or web-based professional development within the past year. Across all three grade levels, the vast majority of teachers reported that they did not participate in online or web-based professional development within the past year. Between 4.1% and 5.7% of teachers reported that they participated in online or web-based professional development within the past year, while between 94.3% and 95.9% reported that they did not participate in online or web-based professional development within the past year. There were no significant differences in responses across grade levels.

Figure 18: **In which of these opportunities did you personally participate within the last year?**

Online or web-based professional development

Yes ▢   No ▮

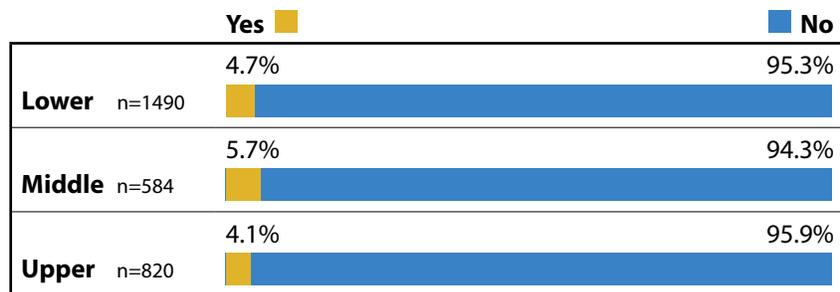|		
Lower n=1490	4.7%	95.3%
Middle n=584	5.7%	94.3%
Upper n=820	4.1%	95.9%

Figure 19 provides information about the percentage of teachers who reported that they participated in one-on-one or group training with technology staff within the past year. Across all three grade levels, the vast majority of teachers reported that they did not participate in one-on-one or group training with technology staff within the past year. Between 16.3% and 34.6% of teachers reported that they participated in one-on-one or group training with technology staff within the past year, while between 65.4% and 83.7% reported that they did not participate in one-on-one or group training with technology staff within the past year. A significantly higher percentage of lower grade and middle grade teachers as compared to upper grade teachers reported that they participated in one-on-one or group training with technology staff within the past year.

Figure 19: In which of these opportunities did you personally participate within the last year?

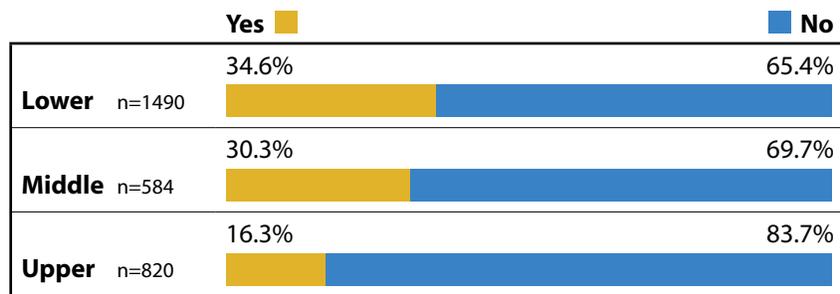**One-on-one or group training with technology staff**

Figure 20 provides information about the percentage of teachers who reported that they participated in release time for department or grade-level planning related to technology within the past year. Across all three grade levels, the vast majority of teachers reported that they did not participate in release time for department or grade-level planning related to technology within the past year. Between 10.0% and 16.3% of teachers reported that they participated in release time for department or grade-level planning related to technology within the past year, while between 83.7% and 90.0% reported that they did not participate in release time for department or grade-level planning related to technology within the past year. A significantly higher percentage of middle grade teachers as compared to upper grade teachers reported that they participated in release time for department or grade-level planning related to technology within the past year.

Figure 20: In which of these opportunities did you personally participate within the last year?

Release time for department or grade level-planning related to technology
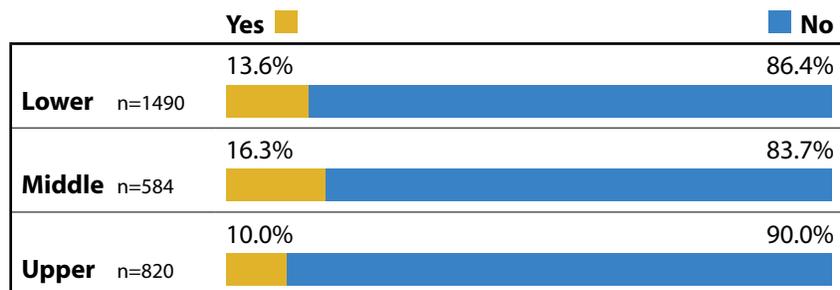
Figure 21 provides information about the percentage of teachers who reported that they participated in release time for individual professional development related to technology within the past year. Across all three grade levels, the vast majority of teachers reported that they did not participate in release time for individual professional development related to technology within the past year. Between 7.4% and 12.7% of teachers reported that they participated in release time for individual professional development related to technology within the past year, while between 87.3% and 92.6% reported that they did not participate in release time for individual professional development related to technology within the past year. A significantly higher percentage of middle grade teachers as compared to upper grade teachers reported that they participated in release time for individual professional development related to technology within the past year.

Figure 21: **In which of these opportunities did you personally participate within the last year?**

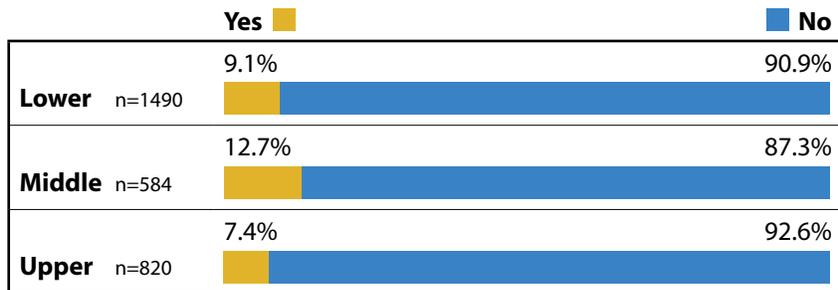**Release time for individual professional development related to technology**

	Yes	No
Lower n=1490	9.1%	90.9%
Middle n=584	12.7%	87.3%
Upper n=820	7.4%	92.6%

Figure 22 provides summary information for the 10 items that asked teachers to indicate which technology-related professional development opportunities they have participated in within the last year. Based on the average score of teachers' responses to the surveyed items on professional development, teachers across all three grade levels reported that they participated the most in workshops and seminars run by district personnel and they participated the least in online or web-based professional development.

Responses to the items regarding workshops and seminars run by district personnel and one-on-one or group training with technology staff differed the most across grade levels. A higher percentage of lower grade and middle grade teachers as compared to upper grade teachers reported that they participated in workshops and seminars run by district personnel. A higher percentage of lower grade and middle grade teachers as compared to upper grade teachers reported that they participated in one-on-one or group training with technology staff. Overall, lower grade and middle grade teachers were more likely than upper grade teachers to report participating in the surveyed technology-related professional development opportunities.

Figure 22:   Summary of Participation in Technology-Related Professional Development
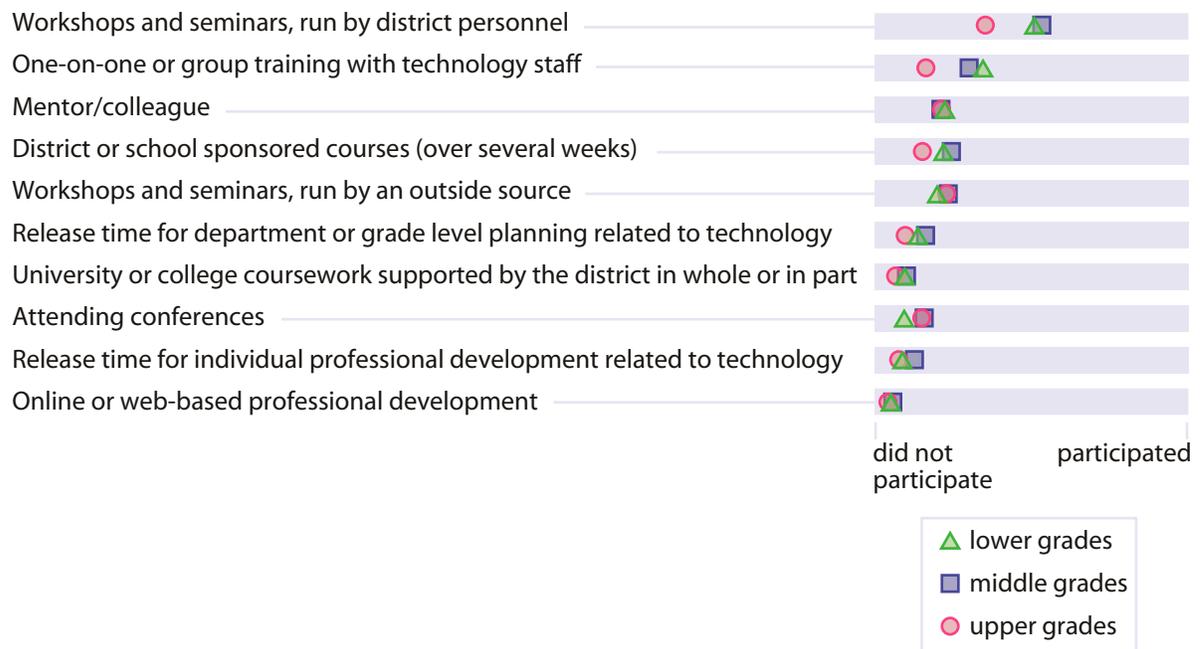
Figure 23 provides summary information for the 20 items that asked teachers to indicate the technology-related professional development opportunities available to them and the opportunities that they participated in during the last year. Based on the average score of teachers' responses to the surveyed items, teachers across all three levels agreed that technology-related professional development was more available than participated in over the past year. The least difference in professional development availability and participation was seen in online or web-based professional development, release time for individual professional development, and release time for department/grade-level professional development. All of which were reportedly not widely available. The greatest difference between professional development availability and participation was seen in workshops and seminars run by district personnel and in district or school sponsored courses (over several weeks). Both of which were reportedly generally available but not participated in by many teachers.

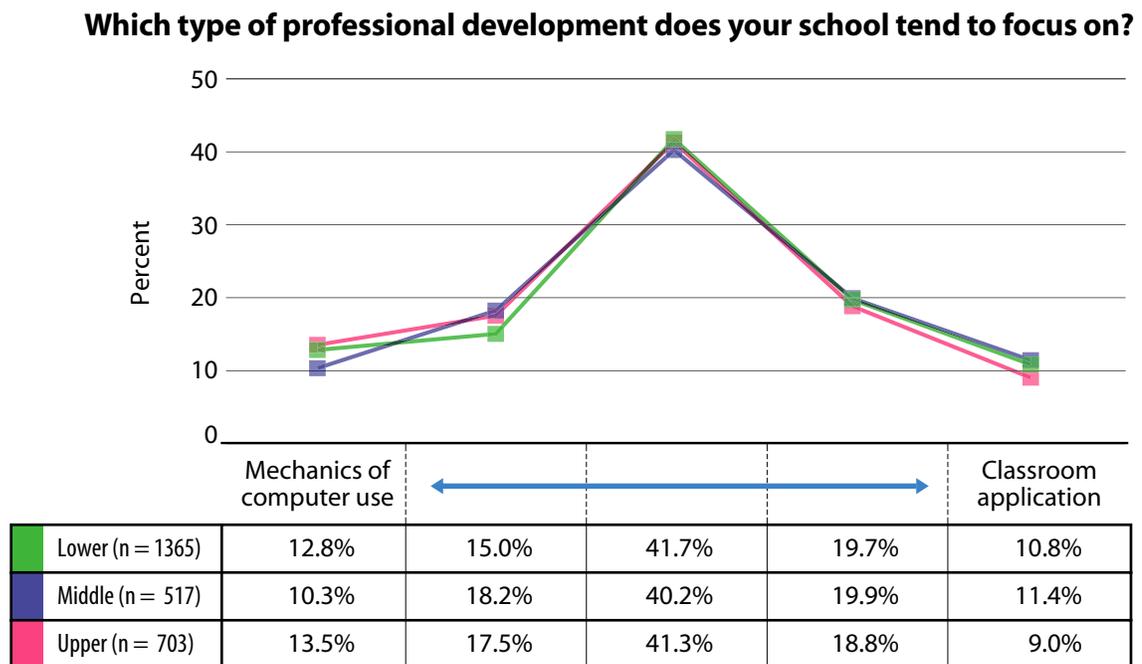**Figure 23:   Summary of Availability and Participation in Technology-Related Professional Development**
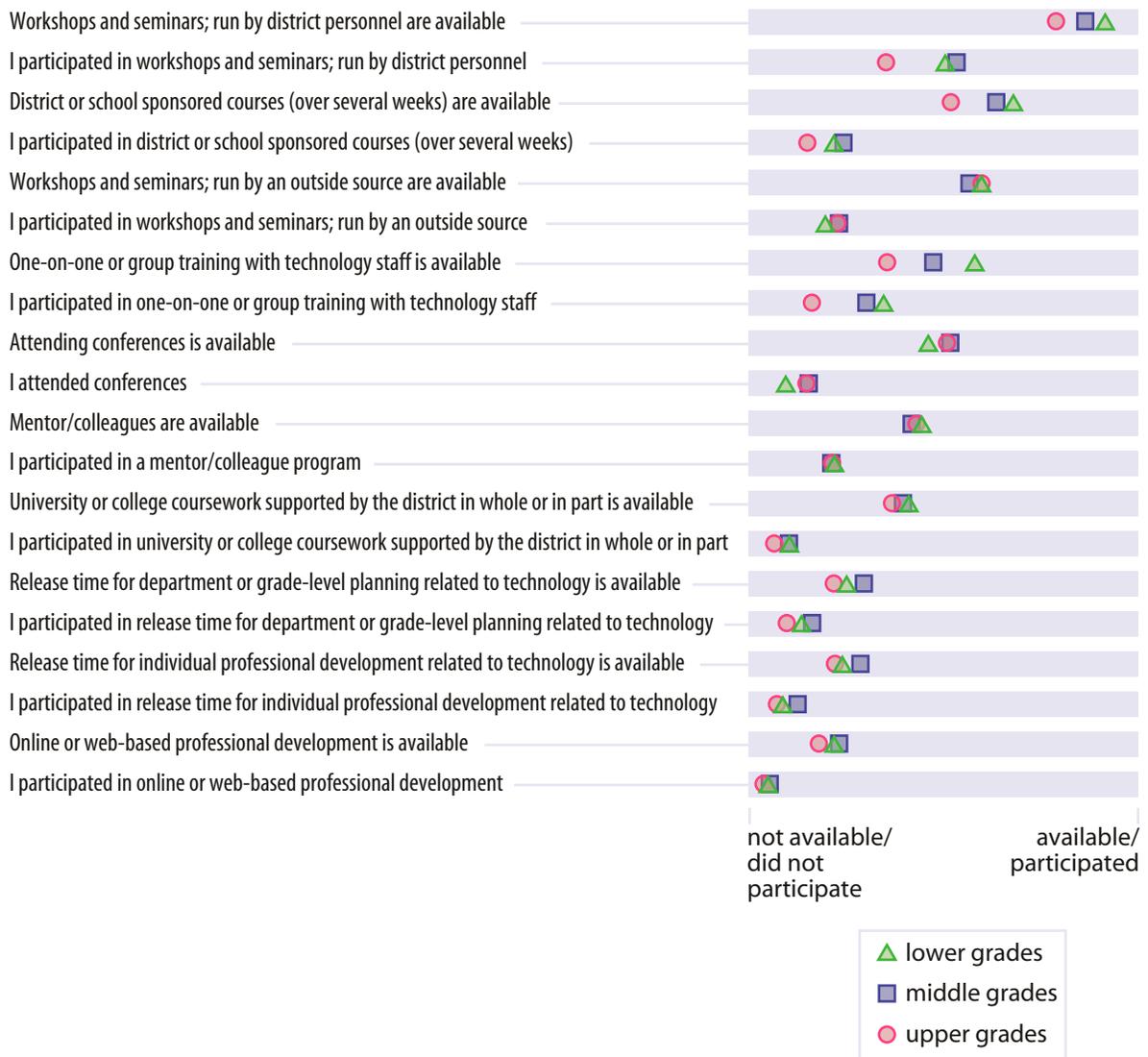
Focus of Professional Development

Figure 24 provides information about whether teachers believe that their professional development focuses on A) the mechanics of how to use a computer or specific software, or B) how to use technology during classroom instruction for specific areas of the curriculum. There were five response options for this question that range on a scale between "mechanics" and "classroom application." Between 10.3% and 13.5% of teachers reported that they strongly believe that their professional development is focused on mechanics of how to use a computer, between 15.0% and 18.2% reported that they believe that their professional development is for the most part focused on mechanics of how to use a computer, between 40.2% and 41.7% reported that the focus of their professional development is a mix of mechanics and application of technology to the classroom, between 18.8% and 19.9% reported that they believe that their professional development for the most part is focused on classroom applications, and between 9.0% and 11.4% reported that they strongly believe that their professional development is focused on classroom applications. There were no significant differences in responses across grade levels.

Figure 24: **In school A, professional development focuses on the mechanics of how to use a computer or specific software. In school B, professional development focuses on how to use technology during classroom instruction for specific areas of the curriculum.**

Which type of professional development does your school tend to focus on?

	Mechanics of computer use				Classroom application
Lower (n = 1365)	12.8%	15.0%	41.7%	19.7%	10.8%
Middle (n = 517)	10.3%	18.2%	40.2%	19.9%	11.4%
Upper (n = 703)	13.5%	17.5%	41.3%	18.8%	9.0%

Types of Technology-Related Professional Development That Would Be Beneficial

This section presents results for eight items that asked teachers to indicate how beneficial different types of professional development would be to them. The three possible responses were the following: not needed, somewhat beneficial, and very beneficial.

Figure 25 provides information about how beneficial teachers believe professional development that focuses on managing computer desktops (opening programs, printing, etc.) would be. Across all three grade levels, the majority of teachers reported that professional development that focuses on managing computer desktops is not needed. Between 59.9% and 68.6% of teachers reported that professional development that focuses on managing computer desktops is not needed, between 19.5% and 23.7% reported that professional development in managing computer desktops would be somewhat beneficial, and between 11.9% and 16.4% reported that professional development that focuses on managing computer desktops would be very beneficial. A significantly higher percentage of upper grade teachers as compared to lower grade teachers reported that professional development that focuses on managing computer desktops (opening programs, printing, etc.) is not needed.

Figure 25: **What kinds of professional development would be beneficial to you?**

Managing my computer desktop (opening programs, printing, etc.)

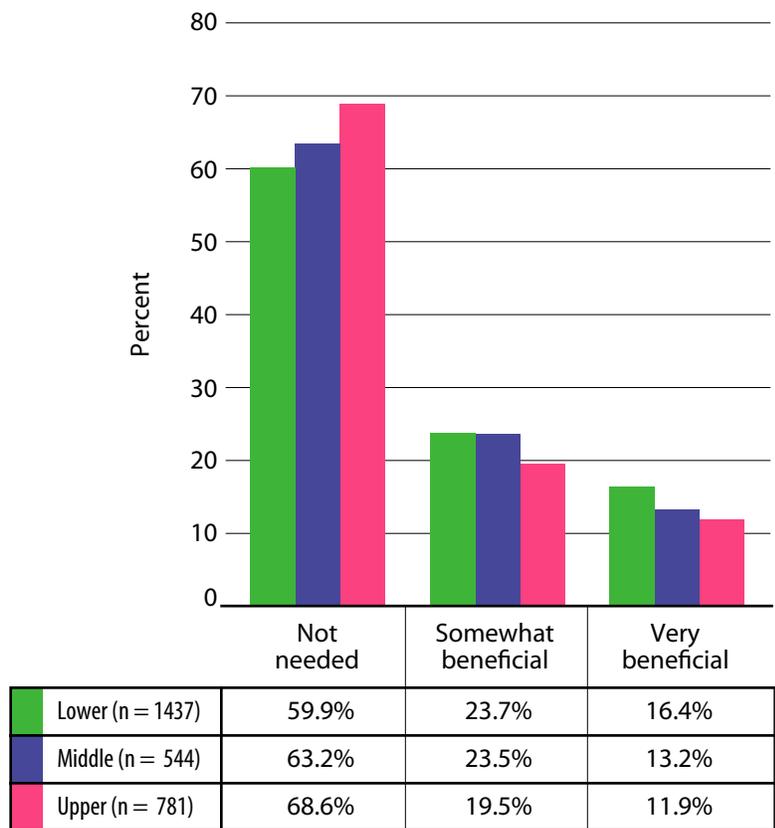|	Not needed	Somewhat beneficial	Very beneficial
Lower (n = 1437)	59.9%	23.7%	16.4%
Middle (n = 544)	63.2%	23.5%	13.2%
Upper (n = 781)	68.6%	19.5%	11.9%

Figure 26 provides information about how beneficial teachers believe professional development that focuses on learning to utilize network services efficiently (email, saving to the server) would be. Across all three grade levels, the majority of teachers reported that professional development that focuses on learning to utilize network services efficiently is not needed. Between 50.2% and 56.6% of teachers reported that professional development that focuses on learning to utilize network services efficiently is not needed, between 28.4% and 31.7% reported that professional development that focuses on learning to utilize network services efficiently would be somewhat beneficial, and between 13.5% and 18.0% reported that professional development that focuses on learning to utilize network services efficiently would be very beneficial. There were no significant differences in responses across grade levels.

Figure 26:   What kinds of professional development would be beneficial to you?

Learning to utilize network services efficiently (email, saving to the server)

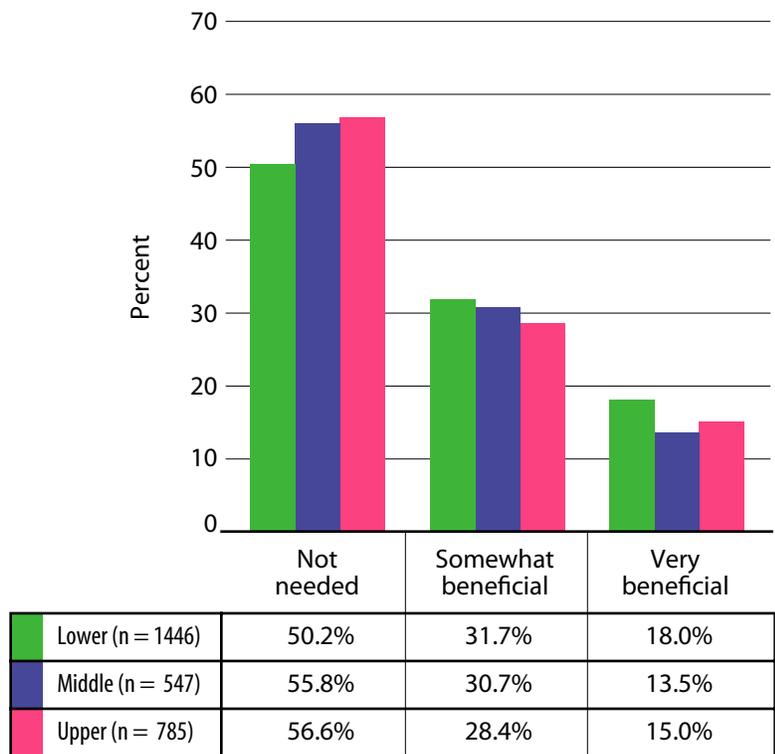|		Not needed	Somewhat beneficial	Very beneficial
🟩	Lower (n = 1446)	50.2%	31.7%	18.0%
🟦	Middle (n = 547)	55.8%	30.7%	13.5%
🟪	Upper (n = 785)	56.6%	28.4%	15.0%

Figure 27 provides information about how beneficial teachers believe professional development that focuses on learning about research sources on the Internet would be. Between 29.4% and 36.4% of teachers reported that professional development that focuses on learning about research sources on the Internet is not needed, between 37.8% and 42.8% reported that professional development that focuses on learning about research sources on the Internet would be somewhat beneficial, and between 25.0% and 30.4% reported that professional development that focuses on learning about research sources on the Internet would be very beneficial. A higher percentage of upper grade teachers as compared to lower grade teachers reported that professional development that focuses on learning about research sources on the Internet is not needed.

Figure 27:   **What kinds of professional development would be beneficial to you?**

Learning about research sources on the Internet

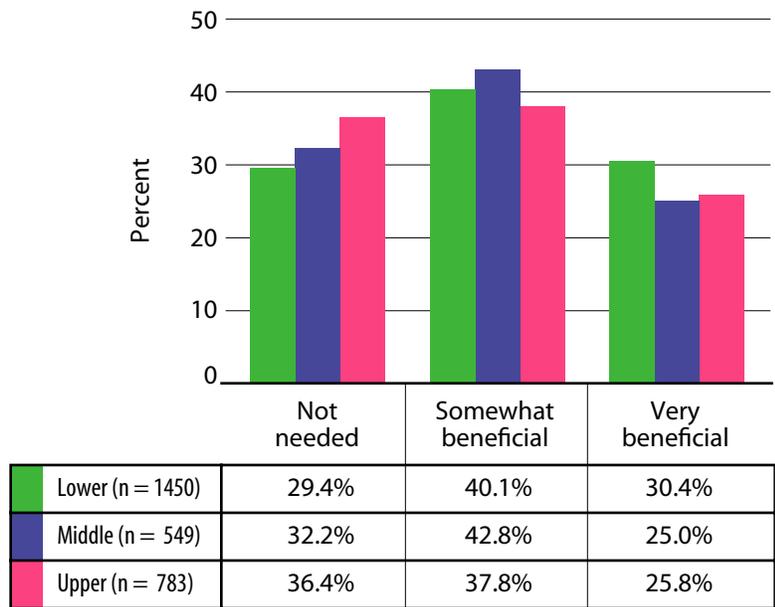|	Not needed	Somewhat beneficial	Very beneficial
Lower (n = 1450)	29.4%	40.1%	30.4%
Middle (n = 549)	32.2%	42.8%	25.0%
Upper (n = 783)	36.4%	37.8%	25.8%

Figure 28 provides information about how beneficial teachers believe professional development that focuses on learning how to manipulate data and construct graphs would be. Between 21.0% and 37.5% of teachers reported that professional development that focuses on learning how to manipulate data and construct graphs is not needed, between 35.6% and 49.1% reported that professional development that focuses on learning how to manipulate data and construct graphs would be somewhat beneficial, and between 26.9% and 29.9% reported that professional development that focuses on learning how to manipulate data and construct graphs would be very beneficial. A significantly higher percentage of upper grade teachers as compared to lower grade teachers reported that professional development that focuses on learning how to manipulate data and construct graphs is not needed.

Figure 28:   **What kinds of professional development would be beneficial to you?**

Learning how to manipulate data and construct graphs

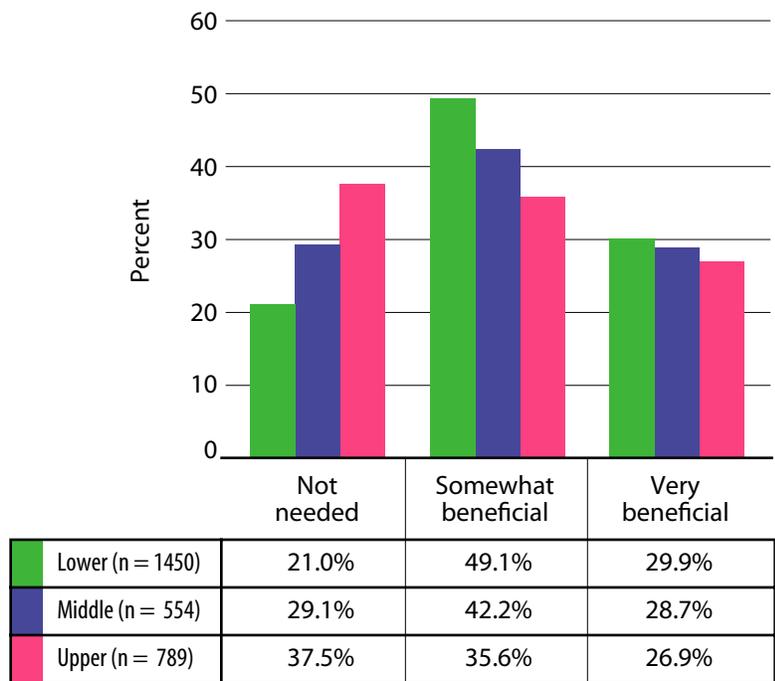|	Not needed	Somewhat beneficial	Very beneficial
Lower (n = 1450)	21.0%	49.1%	29.9%
Middle (n = 554)	29.1%	42.2%	28.7%
Upper (n = 789)	37.5%	35.6%	26.9%

Figure 29 provides information about how beneficial teachers believe professional development that focuses on integrating technology with student writing would be. Between 20.0% and 34.8% of teachers reported that professional development that focuses on integrating technology with student writing is not needed, between 38.0% and 42.7% reported that professional development that focuses on integrating technology with student writing would be somewhat beneficial, and between 27.1% and 40.1% reported that professional development that focuses on integrating technology with student writing would be very beneficial. A significantly higher percentage of lower grade teachers as compared to middle grade and upper grade teachers reported that professional development that focuses on integrating technology with student writing would be very beneficial.

Figure 29: **What kinds of professional development would be beneficial to you?**

Integrating technology with student writing

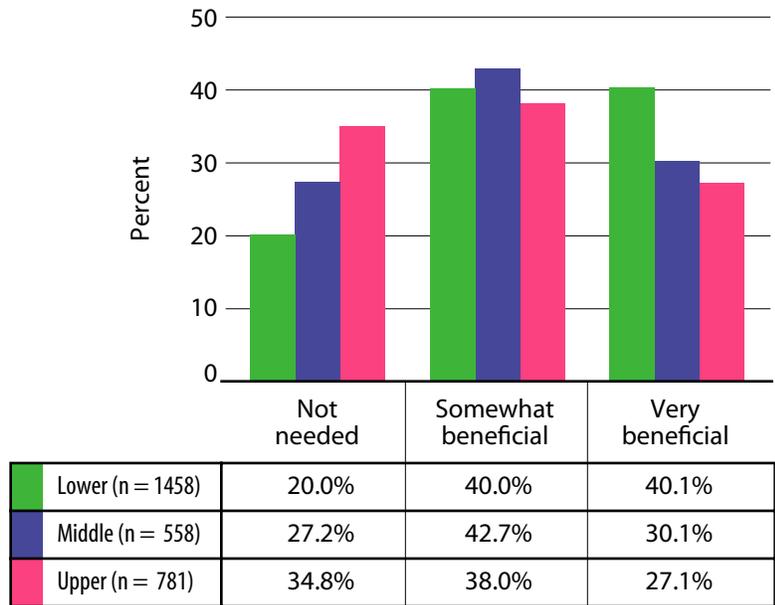|	Not needed	Somewhat beneficial	Very beneficial
Lower (n = 1458)	20.0%	40.0%	40.1%
Middle (n = 558)	27.2%	42.7%	30.1%
Upper (n = 781)	34.8%	38.0%	27.1%

Figure 30 provides information about how beneficial teachers believe professional development that focuses on integrating technology into their classroom activities would be. Between 9.6% and 13.7% of teachers reported that professional development that focuses on integrating technology into their classroom activities is not needed, between 39.9% and 41.0% reported that professional development that focuses on integrating technology into their classroom activities would be somewhat beneficial, and between 45.3% and 50.5% reported that professional development that focuses on integrating technology into their classroom activities would be very beneficial. There were no significant differences in responses across grade levels.

Figure 30:   What kinds of professional development would be beneficial to you?

Integrating technology into my classroom activities

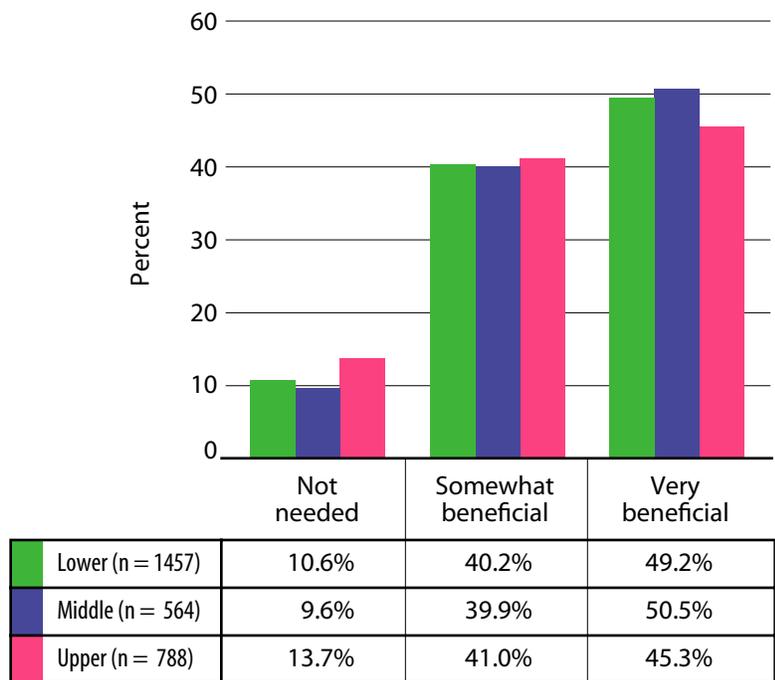|	Not needed	Somewhat beneficial	Very beneficial
Lower (n = 1457)	10.6%	40.2%	49.2%
Middle (n = 564)	9.6%	39.9%	50.5%
Upper (n = 788)	13.7%	41.0%	45.3%

Figure 31 provides information about how beneficial teachers believe professional development that focuses on learning specific applications/software (Microsoft Word, PowerPoint, etc.) would be. Between 20.0% and 31.0% of teachers reported that professional development that focuses on learning specific applications/software is not needed, between 40.1% and 42.5% reported that professional development that focuses on learning specific applications/software would be somewhat beneficial, and between 28.9% and 37.6% reported that professional development that focuses on learning specific applications/software would be very beneficial. A higher percentage of lower grade and middle grade teachers as compared to upper grade teachers reported that professional development that focuses on learning specific applications/software would be very beneficial.

Figure 31:   **What kinds of professional development would be beneficial to you?**

Learning specific applications/software (Microsoft Word, Powerpoint, etc.)

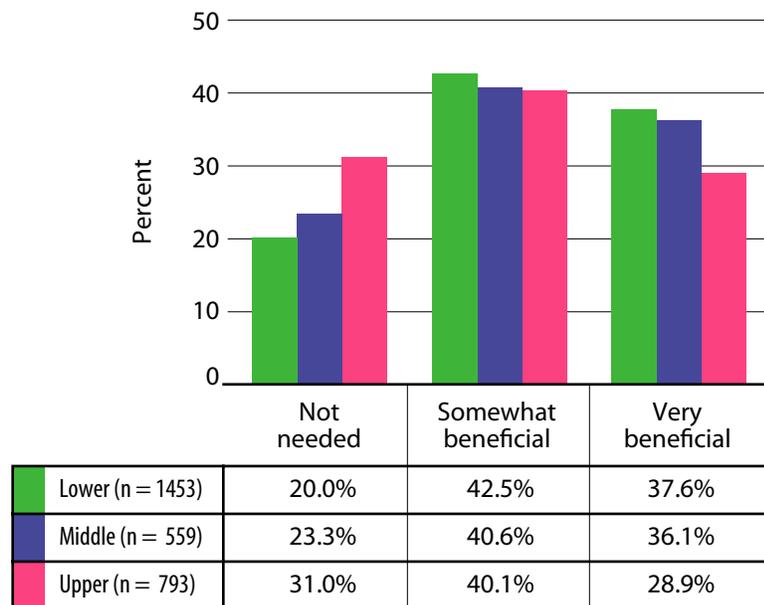|	Not needed	Somewhat beneficial	Very beneficial
Lower (n = 1453)	20.0%	42.5%	37.6%
Middle (n = 559)	23.3%	40.6%	36.1%
Upper (n = 793)	31.0%	40.1%	28.9%

Figure 32 provides information about how beneficial professional development that focuses on learning to use the Internet to engage in on-line interactions and/or mentoring would be. Between 28.0% and 36.2% of teachers reported that professional development that focuses on learning to use the Internet to engage in on-line interactions and/or mentoring is not needed, between 41.7% and 47.9% reported that professional development that focuses on learning to use the Internet to engage in on-line interactions and/or mentoring would be somewhat beneficial, and between 22.2% and 24.1% reported that professional development that focuses on learning to use the Internet to engage in on-line interactions and/or mentoring would be very beneficial. There were no significant differences in responses across grade levels.

Figure 32: **What kinds of professional development would be beneficial to you?**

Learning to use the Internet to engage in on-line interactions and/or mentoring

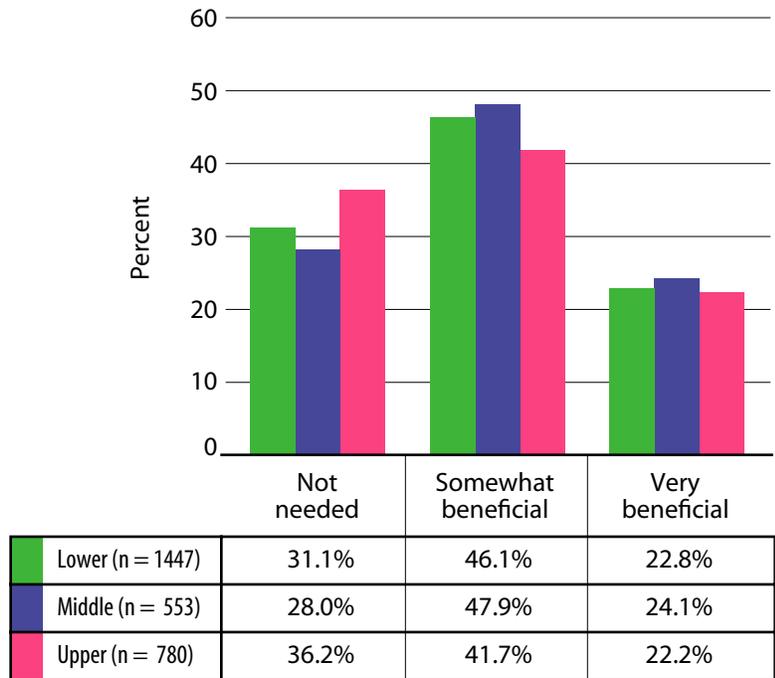|	Not needed	Somewhat beneficial	Very beneficial
Lower (n = 1447)	31.1%	46.1%	22.8%
Middle (n = 553)	28.0%	47.9%	24.1%
Upper (n = 780)	36.2%	41.7%	22.2%

Figure 33 provides summary information for the eight items that asked teachers to indicate which kinds of technology-related professional development would be beneficial to them. Based on the average score of teachers' responses, teachers across all three grade levels agreed that, of the surveyed forms of professional development, managing their computer desktop would be least beneficial and integrating technology with classroom activities would be most beneficial. Responses to the item regarding integrating technology with student writing differed the most across grade levels. A higher percentage of lower grade teachers as compared to middle grade and upper grade teachers reported that professional development that focuses on integrating technology with student writing would be beneficial.

Figure 33:   Summary of the kinds of professional development that would be beneficial to teachers
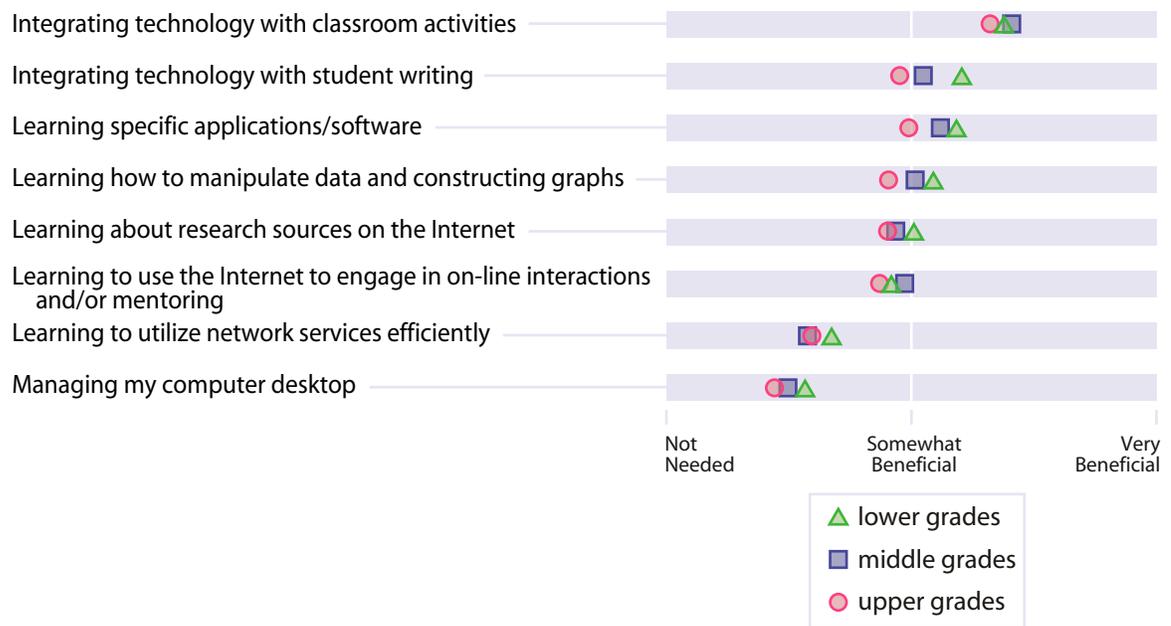
Summary

This report summarizes opinions of 2,894 teachers that replied to survey items regarding their beliefs about technology-related professional development. According to information provided by these teachers, several types of professional development were generally available to teachers. Based on the average score of teachers' responses, workshops and seminars run by district personnel was reportedly the most available type of technology-related professional development and online or web-based training was reportedly the least available type of technology-related professional development. A higher percentage of lower grade and middle grade teachers as compared to upper grade teachers indicated that technology-related professional development was available to them.

But even though several types of technology-related professional development opportunities were widely available to teachers, most teachers did not participate in these opportunities within the last year. The majority of lower grade and middle grade teachers reportedly participated in workshops and seminars run by district personnel – this was the only type of technology-related professional development that the majority of teachers at any grade-level reportedly participated in. Lower grade and middle grade teachers reported that they participated in more technology-related professional development than did upper grade teachers. When availability of professional development was compared to participation in professional development there was the least difference in availability and participation in online or web-based training and individual or group release time for technology-related professional development. All of which were reportedly not widely available. The greatest difference between availability and participation was in workshops and seminars run by district personnel and district or school sponsored courses (over several weeks). Both of which were reportedly generally available but not participated in by many teachers.

When teachers were asked to indicate what kinds of professional development would be most beneficial to them, teachers across all three grade levels agreed that, of the surveyed forms of professional development, managing their computer desktop would be least beneficial and integrating technology with classroom activities would be most beneficial. Responses to the item regarding integrating technology with student writing differed the most across grade levels. A higher percentage of lower grade teachers as compared to middle grade and upper grade teachers reported that professional development that focuses on integrating technology with student writing would be beneficial.

inTASC is a not-for-profit research group that works collaboratively with schools, educational agencies, and businesses to conduct research and development on a variety of issues related to technology and assessment. inTASC brings together researchers who have examined several aspects of technology and assessment in schools over the past decade to focus on new questions and issues that arise from the field. inTASC is unique in that it does not develop research studies and then seek schools to participate in research activities. Instead, schools, educational agencies, and businesses approach inTASC with their own ideas and/or questions that require systematic research to address. Research conducted by inTASC is developed, conducted, and often disseminated in collaboration with our educational and business partners.

inTASC believes that advances in educational technology and continuously emerging applications of those technologies coupled with growing demands to document impacts on teaching and learning requires a dual focus on instructional uses of technology and applications of technology to new forms of assessment. For this reason, inTASC collaborates on research that focuses on instructional uses of technology and on applications of computer-based technologies to the technology of testing and assessment. It is our hope that this dual focus will enable us to provide research-based information to schools and educational leaders about the impacts of educational technology, and to produce new forms of assessment that capitalize on the powers of computer-based technologies and that are more sensitive to the types of learning enabled by educational technologies.

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