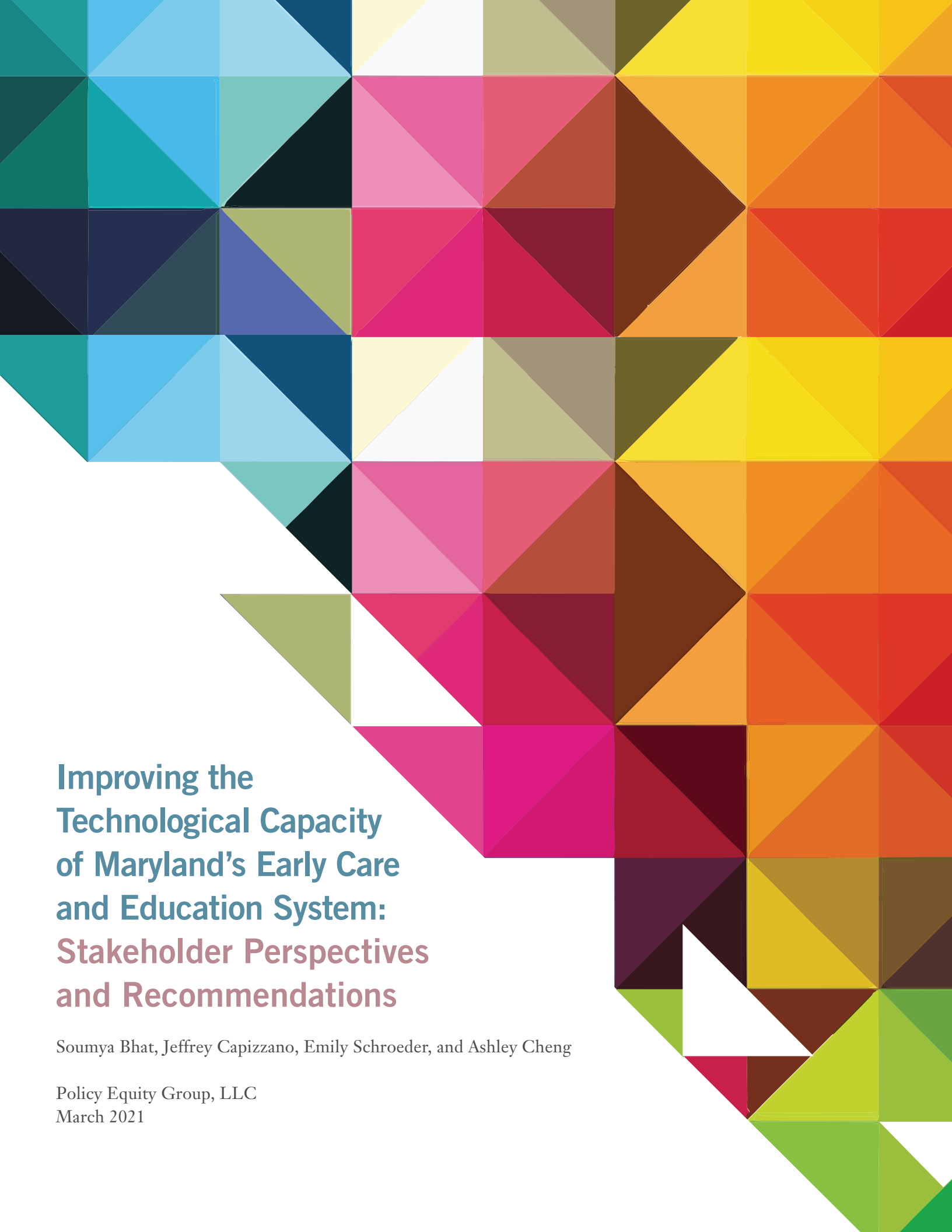

Improving the Technological Capacity of Maryland's Early Care and Education System: Stakeholder Perspectives and Recommendations

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Policy Equity Group, LLC
March 2021

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MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

THE POLICY EQUITY GROUP
EMPOWERING THE SOCIALLY CONSCIOUS

This technology plan was developed by the Maryland Family Engagement Coalition and the Maryland State Department of Education, Division of Early Childhood, as part of the Family Engagement Initiative, funded through a grant opportunity with the W.K. Kellogg Foundation. The Coalition would like to acknowledge Policy Equity Group, LLC for their facilitation services and research in developing this resource. The Coalition would also like to acknowledge Maryland's State Early Childhood Advisory Council for adopting the plan and committing Maryland to improving and increasing technology for early childhood educators and providers, and their families.

Introduction

The Division of Early Childhood (DEC) within the Maryland State Department of Education (MSDE) is increasingly relying on technology to administer early care and education (ECE) programs, communicate information, and provide training and technical assistance to ECE stakeholders. Even prior to the current COVID-19 pandemic, DEC was making changes to its administrative, communication, and training processes that significantly leveraged technology, including a heavier reliance on online portals, text messages, social media, and webinars. COVID-19 and associated social distancing measures have only increased this reliance. Indeed, during the pandemic, most of the day-to-day aspects of administering Maryland's ECE system have involved technology, ranging from the daily use of online meeting applications to webinars for virtual training and technical assistance.

Digital literacy—the ability to use technology to receive and communicate information—is increasingly essential to workplace efficiency and overall economic success. In Maryland, the ability to access and utilize technology has become essential for ECE stakeholders to conduct their work effectively and efficiently. In order for DEC to achieve its goals for the ECE system, all stakeholders should have the resources and competencies to meet administrative requirements using technology, as well as the ability to access and utilize the increasing amount of information, resources, and supports that are provided through different forms of technology. The increased technological capacity of Maryland's ECE stakeholders has the potential to improve the administrative functions of providers, make training and technical assistance more accessible, and support improved communication between DEC and providers, between providers and the families they serve, and between ECE settings and the PreK-12 system. As such, it is critically important that DEC understands the technological capacity, competencies, and needs of the state's ECE community and collaborates with the PreK-12 system to address these needs. To date, DEC has only anecdotal evidence on which to base its understanding of the technological capacity and competencies of ECE stakeholders, and lacks a roadmap outlining the best ways in which to support their technological needs.

To help DEC gain a better understanding of the technological capacity, capabilities, and needs of ECE stakeholders, the Policy Equity Group conducted a study between February and July 2020 that included ECE providers, trainers, coaches, and DEC staff. The research was designed to inform the following questions:

- What is the technological capacity of Maryland ECE providers and the individuals who provide professional development (PD) and training?
- What are providers' and families' preferred methods of receiving training and communications from DEC/MSDE?
- What is MSDE's current capacity to build the technological competencies of ECE stakeholders?
- How is technology being used by ECE providers to communicate and engage with families?
- What state-level policy or system enhancements could be implemented to support the increased technological capacity of ECE providers and PD/training professionals?

This report offers insights on these questions, along with a set of recommendations to support and inform the state's efforts to improve technological capacity across Maryland's ECE system. While COVID-19 was not the initial focus of the study, the study's methodology was adapted to capture some of the more pronounced impacts of COVID-19, which are used to inform the state-level recommendations.

What do we mean by "technology"?

For the purposes of the study, the term "technology" was defined broadly to include e-mail/e-newsletters, webinars, blog posts, text messages, social media (e.g., Facebook, Twitter, Instagram), online applications ("apps"), and other web-based platforms used to communicate with ECE providers and/or families of young children.

Methods

To ensure maximum participation by Maryland's ECE community, the research team employed two data collection strategies: (1) focus groups and (2) an online stakeholder survey.

Focus Groups: Five focus groups of approximately 60 stakeholders were conducted from February 11–March 19, 2020. These included three focus groups with members of the professional development/training community, one focus group with DEC staff, and one focus group with family child care providers. Four of the five focus groups were conducted in person prior to the onset of the pandemic, while one was conducted virtually (see **Table 1**).

Table 1: Stakeholder Focus Group Summary

Group	Stakeholder Group	Date	In-Person or Virtual	# of Participants[1]
1	MSDE Staff	2.11.2020	In-person	8
2	MD EXCELS Quality Assurance Specialists	2.20.2020	In-person	19
3	Family Child Care Providers	3.09.2020	In-person	11
4	ECMH Consultants	3.11.2020	In-person	10
5	PD Trainers	3.19.2020	Virtual	8

The conversations focused on the following issues related to the technological capacity and issues within the ECE stakeholder community:

- current uses of technology by ECE providers and individuals providing PD and training;
- preferred technological platforms and methods of communication for providers and parents;
- barriers in the use/access of technology faced by ECE stakeholders;
- available options for technical support and troubleshooting; and
- state-level policy or system solutions to improve the technological capacity of Maryland's ECE stakeholder community.

Each focus group session lasted approximately one hour and was recorded and transcribed to identify key themes and perspectives for inclusion in this technology plan. **Appendices A** and **B** include the facilitation protocols used for the PD/trainer and ECE provider focus groups, and **Appendix C** contains a summary of focus group findings.

Stakeholder Survey: In order to understand the technology capacity and needs among a broader sample of Maryland ECE stakeholders, a survey was administered to the Maryland ECE community between June 5–22, 2020 that included questions about current uses of technology, comfort level using technology, perceived impacts of technology on work, technical support needs, and recommendations to improve overall technological capacity. (See **Appendix D** for a copy of the stakeholder survey.) The survey was administered using SurveyGizmo. A link to the survey, along with an overview of the technology study, was shared with the MSDE leadership for broad dissemination to ECE stakeholders via e-mail lists and newsletters, and 1,179 valid responses were received. Responses were then coded and analyzed. Blank or non-applicable responses were not included in the final count and analysis of responses. For a more detailed description of the survey analysis methodology, including the coding of open-answer responses and quantitative analysis, please see **Appendix E**.

Despite being disseminated in the wake of COVID-19 closures, the online stakeholder survey received a good response from the ECE community, with significant role, age, and geographic diversity across the sample. Of the 1,179 respondents, 75 percent identified as an ECE program administrator, director, or owner; 19 percent identified as an ECE teacher, assistant teacher, or support staff; and 6 percent as a professional development and/or training professional.[2] (See **Figure 1.**) The ECE directors and teachers were also asked about the type of ECE setting in which they worked, with most representation from family child care/home-based settings (46 percent), followed by center-based child care (33 percent), school-based PreK programs (10 percent), and Head Start/Early Head Start programs (7 percent).

[1]These focus groups were held in the weeks immediately leading up to the shutdown of the state because of the COVID-19 pandemic. Respondents were given the opportunity to join the March focus groups by phone. As such, it was more difficult to get an exact count of focus group participants.

[2]Of the respondents, 123 stakeholders who identified as parents were removed from the survey, as they were not the focus of the study.

Respondents who selected PD/training as their role were asked about their area of focus, with about one-third of respondents selecting program quality improvement (35 percent), followed by general technical assistance/training (27 percent), early childhood mental health/Pyramid Model (20 percent), and general PD/best practices for ECE (8 percent).

There was also geographic diversity within the sample, with half indicating they worked in suburban settings and about a quarter working in each rural and urban settings (see **Figure 1**). Respondents represented every county across the state, and there was strong representation from the population centers of Prince George's County, Baltimore County, Baltimore City, and Montgomery County (see **Figure 2**). The majority of respondents were over the age of 30, with a greater concentration of veteran staff working in technical assistance and PD/training positions compared to those in teaching and director roles.[3] Analyses were completed to determine what, if any, variation existed by ECE role, geography, and age group.

Figure 1. Survey Respondents by ECE Role and Geographic Area for ECE Work

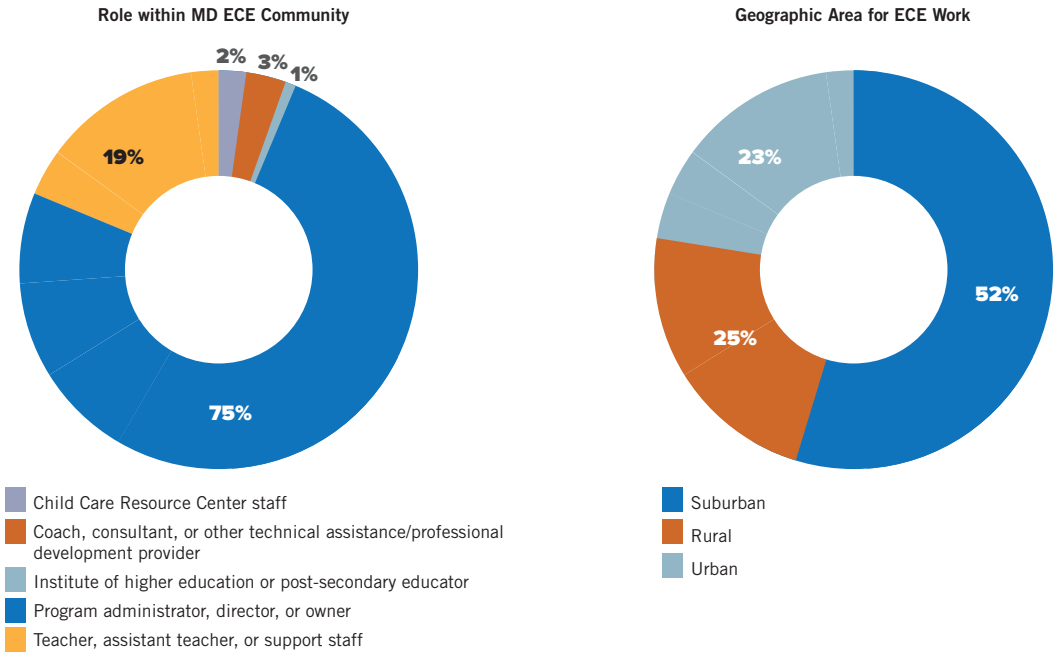
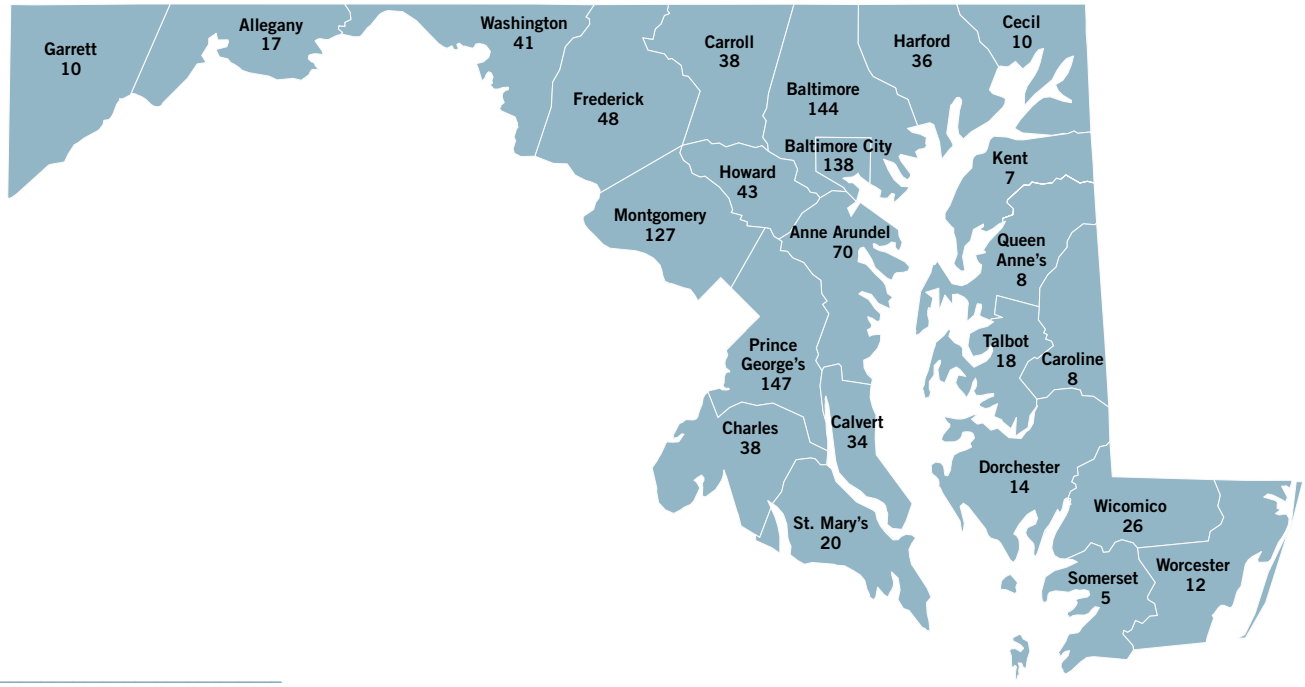


Figure 2. Number of Survey Respondents by Maryland County



[3]Age was determined by subtracting birth year from 2020. In all, 54 percent of respondents were over the age of 50, 43 percent were between the age of 30 and 50, and 4 percent were under the age of 30.

Methodological Constraints: There are two important points to consider resulting from the COVID-19 pandemic that affected the methods used for this study. First, the survey of ECE providers was intended to be administered both online and through a paper-and-pencil version at various statewide conferences of ECE stakeholders. The need to administer a paper-and-pencil version of the survey was to ensure that providers who might have technological issues in accessing the online version would still be able to respond to the survey questions. Due to necessary precautions taken by the Maryland state government to limit the spread of COVID-19, all in-person meetings and conferences were canceled, leaving the online version as the only way for stakeholders to respond. Clearly, the inability to administer a paper-and-pencil version of the survey limits a specific type of respondent—those who have difficult accessing the internet—from taking the survey. As such, the findings in the report are most likely an underestimate of the technological issues in the state, as the survey responses are from those who had the capacity to access and respond to an online survey.

The COVID-19 pandemic also made it more difficult to conduct focus groups. Prior to the shutdown, four in-person focus groups were conducted, and one additional focus group of PD trainers was administered using a virtual GoToMeeting format. At the time of the shutdown, a focus group of center-based providers had not been conducted. Given the stress of the shutdown on the provider community, a focus group of center-based providers was not pursued. As such, the qualitative data collected through focus groups, particularly ECE providers, to inform this plan was limited in scope and should not be interpreted as representative of the entire Maryland ECE stakeholder community.

Findings

The survey and focus groups highlighted the variety of ways in which technology is currently used by the ECE community, the challenges around access to technology and technical support, and suggestions for improvements that can be made at the state level to build additional technological capacity. Overall, through the survey and focus groups, ECE stakeholders expressed a number of overarching concerns, such as:

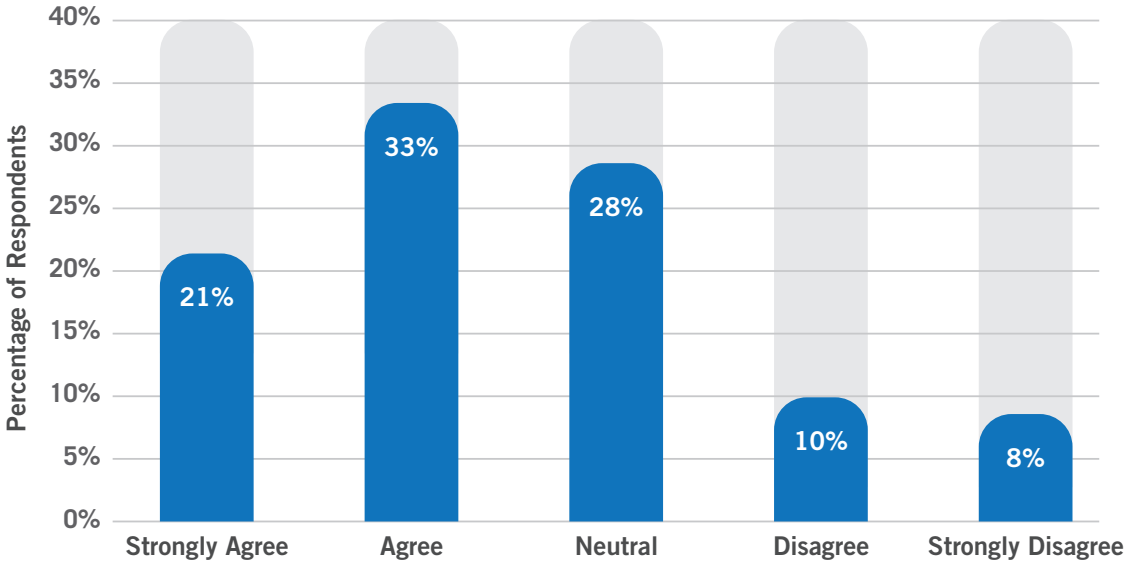
- the need for more reliable and faster internet access across the state, as well as access to appropriate devices/hardware (e.g., computers and laptops);
- the lack of capacity and level of discomfort among ECE stakeholders impacting the effective use of technology in their work;
- the need for training and technical assistance to help providers use technology to enhance their program's overall administration, access professional development, and communicate with families; and
- the lack of technical support for ECE stakeholders when problems arise.

These stakeholder concerns are organized into the five findings below.

Finding 1: Access to reliable internet and devices are foundational barriers for ECE stakeholders in leveraging technology to improve administrative functions, access professional development, and facilitate communications.

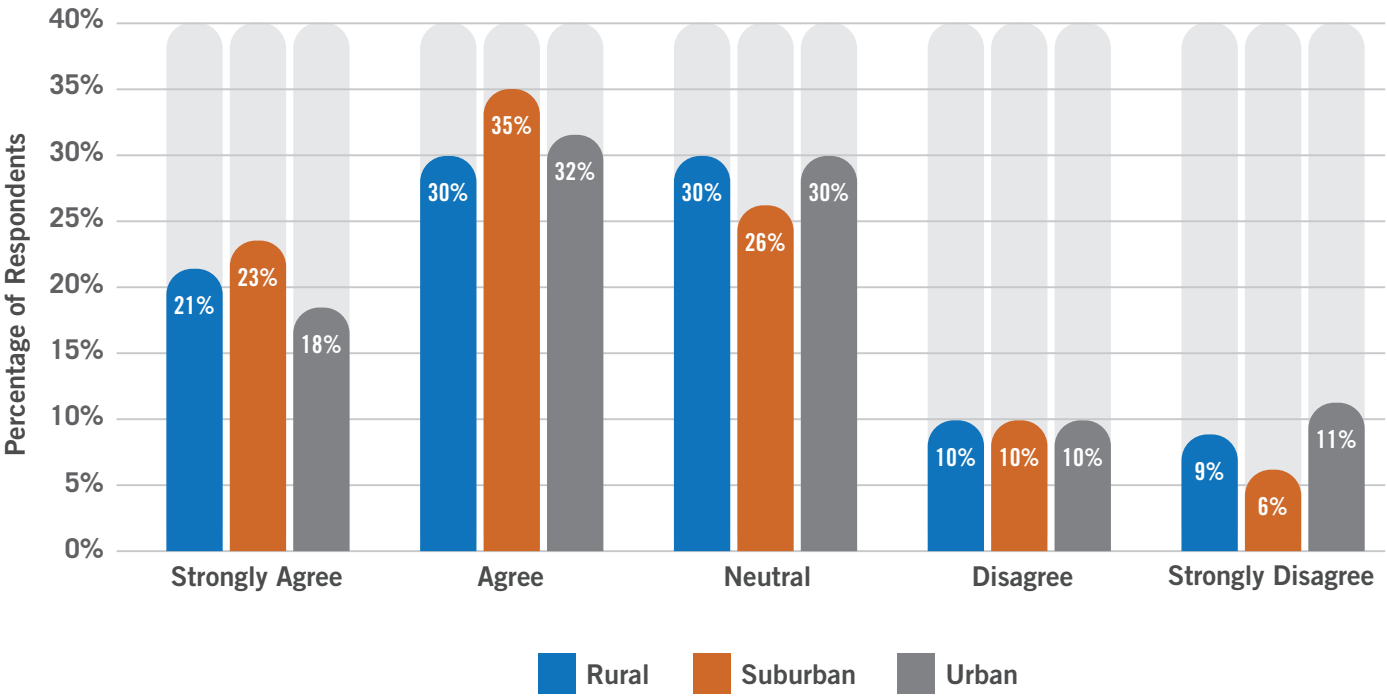
Given DEC's increasing reliance on web-based applications for the administration of programs and services, communication, and training, reliable internet service and the devices necessary to connect to the internet have become essential to the ability of Maryland ECE providers and PD professionals to be successful in their work. ECE stakeholders raised a number of pressing issues related to internet access and the availability of devices. As part of the stakeholder survey, ECE respondents were asked to what extent they agreed with the statement that "reliability and speed of internet access are sufficient" in their workplace. As outlined in **Figure 3**, 18 percent of respondents "disagreed" or "strongly disagreed" with the statement, meaning that nearly one in five stakeholders interviewed was without reliable and/or sufficiently fast internet access in the workplace.

Figure 3. Agreement with statement that reliability and speed of internet are sufficient



Interestingly, as displayed in **Figure 4**, there does not appear to be any variation among respondents who live in urban, suburban, or rural areas. Given the broadband issues in rural areas of the state, it was expected that rural respondents would have been more likely to disagree or strongly disagree with the statement. However, this lack of variation may be because Baltimore ranks near the bottom of cities nationally for internet access and availability of devices (27 percent of the sample was from Baltimore City and County), so the problem might be roughly similar in rural and urban areas in the state.[4] Equally likely, the fact that the survey was only administered online may mean that stakeholders in rural areas who would have strongly disagreed may not have had the opportunity to respond to the survey.

Figure 4. Agreement that reliability and speed of internet are sufficient by urbanicity

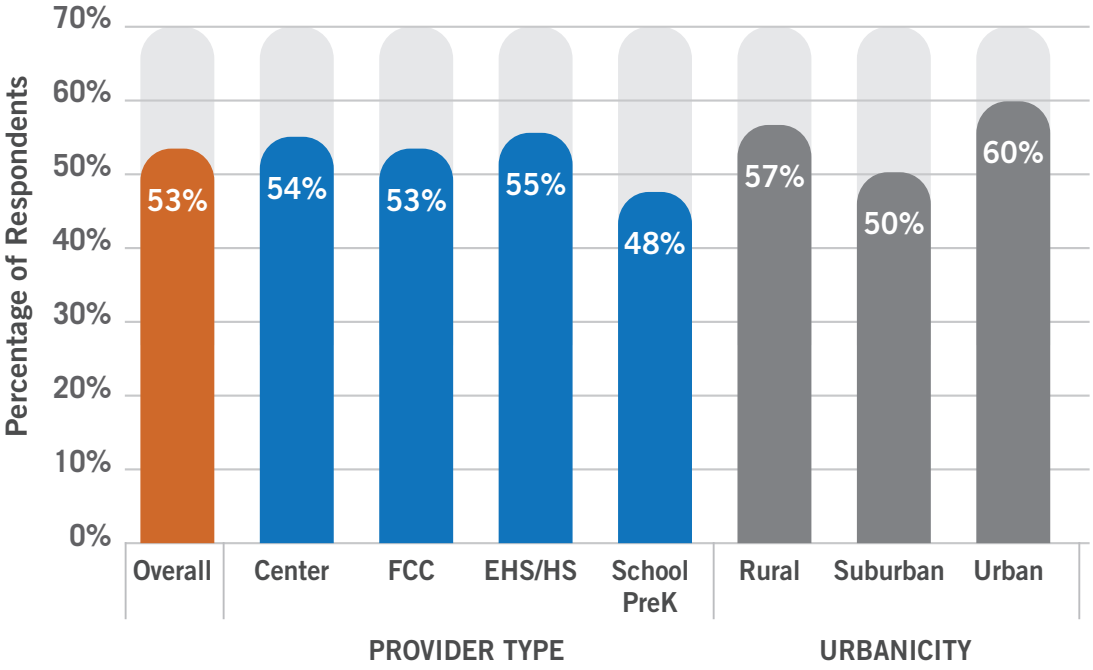


[4]Horrigan, John, B. "Baltimore's Digital Divide: Gaps in Internet Connectivity and the Impact on Low-Income City Residents." *The Abell Report*. Volume 22, Number 4: Baltimore, Maryland: The Abell Foundation.

Despite the relatively small percentage of respondents without reliable and/or sufficiently fast internet access in the workplace, a much larger percentage of ECE stakeholders (53 percent) noted that they would like to see the state focus on faster connectivity. This means that while a smaller percentage of stakeholders may personally have reliability or speed issues, they are aware of reliability and speed issues within the broader ECE community (see **Figure 5**). Again, there is little variation in this percentage by stakeholder type and urbanicity.

This internet connectivity issue was also discussed at length in the focus groups. Several participants spoke about bandwidth issues and unreliable access to the internet in their communities that prevented them from connecting or staying connected to online platforms or that caused video and audio issues during online trainings. As one focus group respondent noted, *"We have some rural areas that still don't even have access to WiFi. They don't even get accessibility. How are they [DEC] going to help those providers? There's some areas in Western Maryland that still do dial up."* Given these issues, focus group participants discussed relying on other settings in their community to access the internet, including public libraries, resource centers, community colleges, and coffee shops. Unfortunately, these settings have limited hours and low capacity, making them an unreliable solution for those who struggle with internet access.

Figure 5. Percentage of respondents suggesting faster internet as a state-level enhancement to increase capacity of ECE providers



Hardware/Devices

Maryland stakeholders also highlighted the lack of devices and hardware as a significant barrier to leveraging technology. For example, when asked what state-level policy or system enhancement should be implemented to increase the technical capacity of ECE providers, 69 percent of respondents highlighted the need for hardware, including laptops and mobile data hotspots. Interestingly, when examined both by respondent type and by urbanicity, there is little variation among PD professionals, directors, and teachers, as well as respondents from urban, suburban, or rural areas of the state. In the open-ended survey questions, respondents discussed affordability as a significant barrier driving lack of devices and hardware among ECE stakeholders. As one survey respondent noted, *"Our biggest barrier in using technology is not being able to afford the devices needed to implement technology use."* Another survey respondent discussed using personal finances to fund the technology necessary for the classroom: *"The technology I use in my classroom, I purchased. I provide my own laptop, tablet, and smartphone to use the technology required by my job such as Zoom, e-mail, virtual training…. I pay for my own hotspot because the internet at my job is horrible. We don't get paid enough for this to be reasonable."*

Focus group participants also highlighted the lack of devices as a major barrier to leveraging technology, citing cost as the main reason stakeholders did not have access to a computer. As one Quality Assurance Specialist who supports the lower Eastern Shore

noted, "*… about a third of my providers do not even have computers, so they aren't even able to access [the internet].*" One focus group participant recalled a conversation with a provider where the provider discussed cost, "*… I'm not spending $1,000 to buy a computer.… I make $1,200 a month. I'm not spending $1,000 on a computer. I just won't do this.… I can't give you a 12th or 10th of my income. And I was like, I get it.*"

Similar to internet access, focus group participants noted that when computers were required for a work-related activity, providers without a computer relied on public spaces like libraries and community colleges with computer labs for computer and internet access. Respondents noted that when these needs occur, there can be an overwhelming demand on these labs *"because everybody's trying to access those locations in those areas."*

Finding 2: ECE stakeholder capacity and comfort level varies by type of technology or technological platform.

While issues with internet reliability/speed and access to devices represent foundational barriers to the effective utilization of technology, the varying technological capabilities and comfort level of Maryland ECE stakeholders with different technology and technological platforms also affected utilization. As part of the survey, ECE stakeholders were asked to rate their comfort level with different types of technology and technology platforms from "very comfortable" (rating of five) to "not comfortable at all" (rating of one). **Table 2** provides the average comfort rating across respondents by technology and respondent type.[5] ECE stakeholders were most comfortable searching the internet, sending text messages, and using e-mail, with little variation among PD professionals, ECE directors, and teachers. ECE stakeholders were somewhat less comfortable with mobile applications, but all of these forms of technology received an average comfort score of four or higher on the survey.

ECE stakeholders were less comfortable with online training modules, navigating social media, and webinars. Average scores for these types of technology were below four, with little variation across respondent types. These findings are important given that online training and webinars, in particular, are critically important ways in which DEC connects with ECE stakeholders across the state.

Table 2. Average comfort ratings by technology and respondent type

Technology	Overall	PD & Trainers	ECE Directors	ECE Teachers
Internet	4.59	4.54	4.60	4.54
Text messages	4.29	4.37	4.27	4.33
E-mail/E-newsletters	4.24	4.62	4.22	4.23
Mobile applications	4.13	4.17	4.12	4.18
Online training modules	3.86	3.92	3.84	3.93
Social media	3.74	3.68	3.72	3.83
Webinars	3.73	4.03	3.68	3.82
Blog posts	2.49	2.81	2.43	2.66

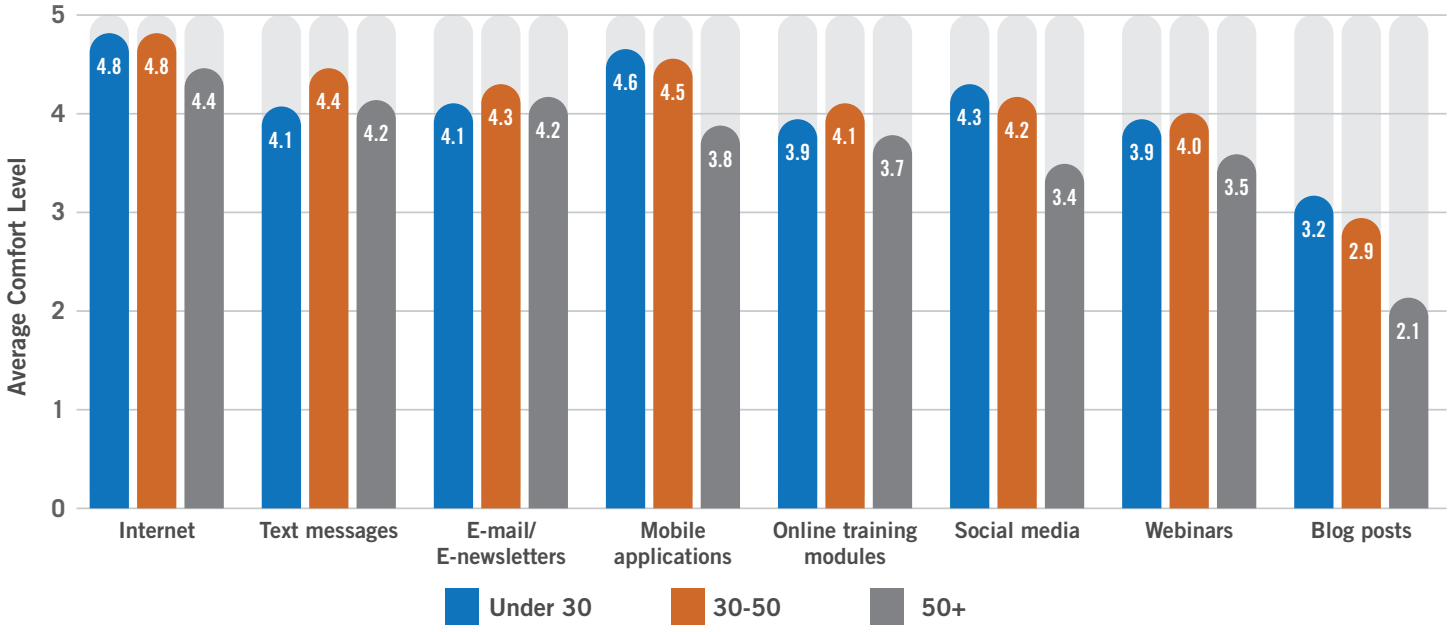
Score 1-5, where 1 = Not at all comfortable and 5 = Very comfortable

It is also important to note that there are ECE stakeholders who indicate that they are not completely comfortable with basic forms of technology like the internet, e-mail, and text messages.

Perhaps not surprisingly, there was variation in comfort level by age of respondent (**Figure 6**). Across the various forms of technology, respondents over the age of 50 reported being less comfortable with mobile applications, social media, webinars, and blog posts. For these forms of technology, the average comfort level rating was significantly lower than the next lowest age group. This finding is also important given the large percentage of ECE teachers who are over the age of 50 in the state.

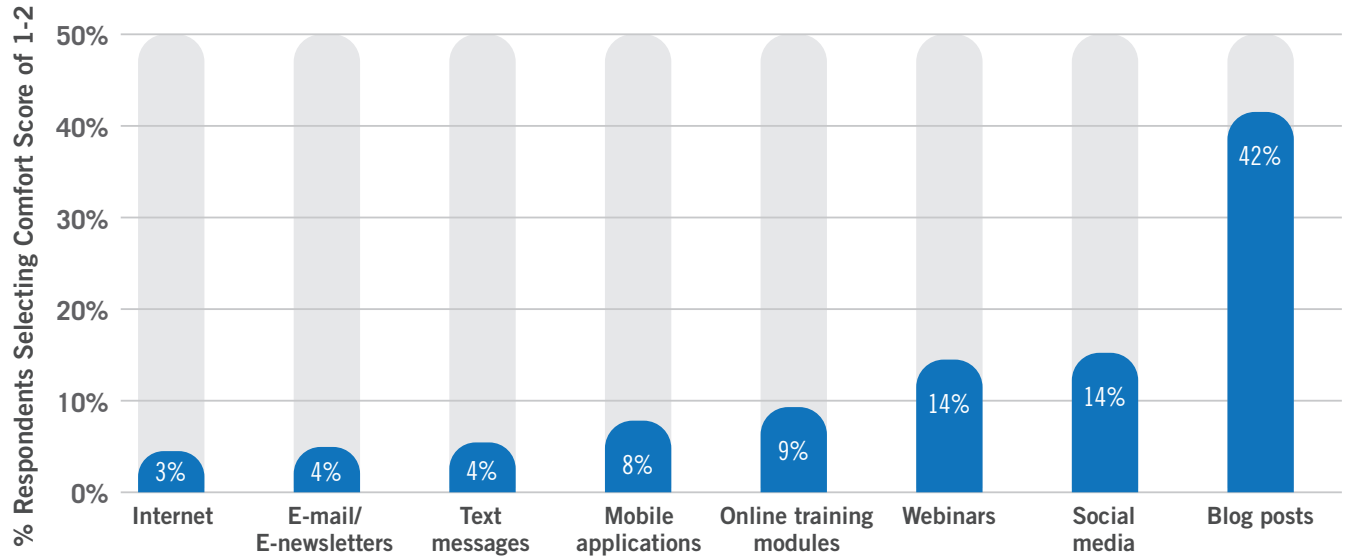
[5]It is important to remember that survey respondents had to have some technological capacity to respond to the survey, so these comfort levels are most likely an overestimate of the comfort stakeholders have in using these technologies and technological platforms.

Figure 6. Average comfort level using various forms of technology by age group



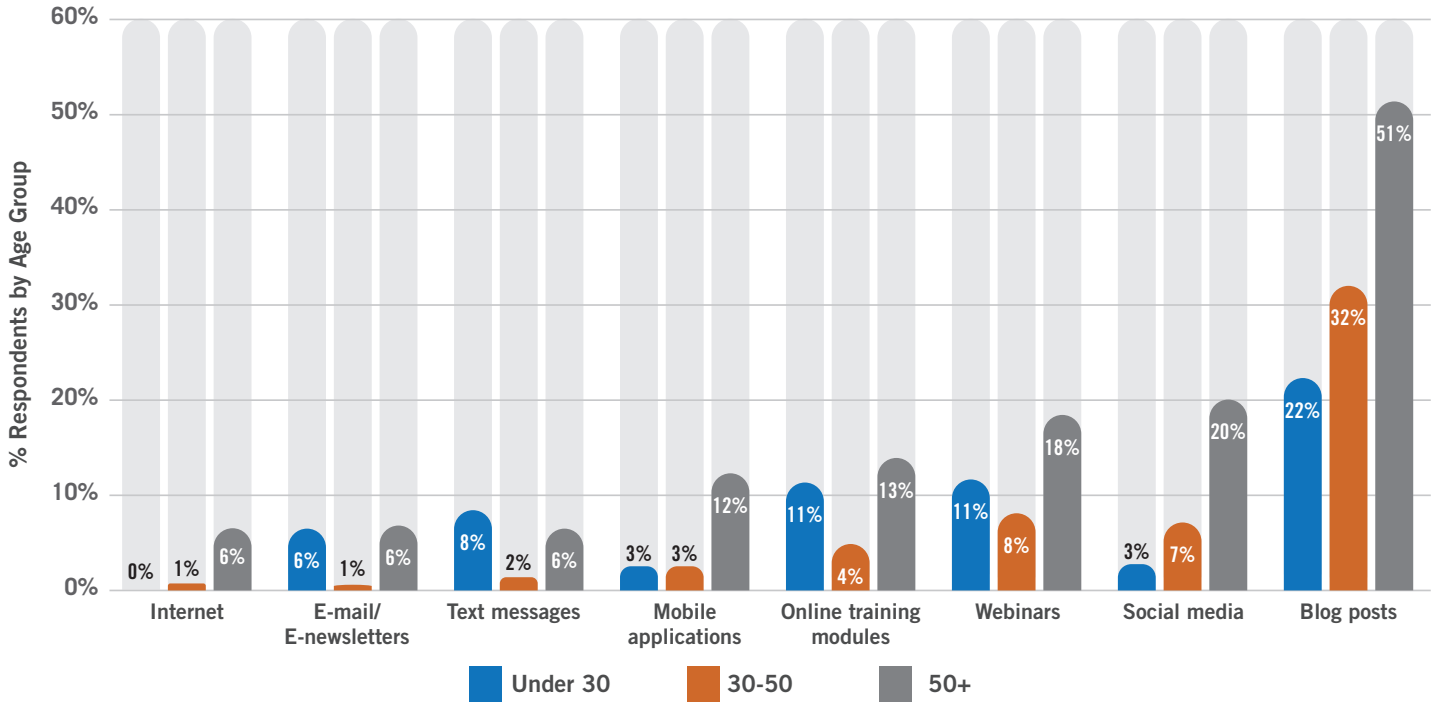
At the same time, these averages mask the extent to which stakeholders are uncomfortable with different forms of technology. To look more closely at stakeholder comfort with technology, **Figure 7** provides the percentage of respondents who reported a comfort level of 1 or 2 for the different technologies/platforms. A non-trivial percentage of stakeholders were not comfortable with accessing the internet (3 percent), e-mail (4 percent), and text messaging (4 percent), with larger percentages indicating a lack of comfort with online training modules, webinars, social media, and blog posts.

Figure 7. Survey respondents not comfortable with using different technologies (score 1-2)



Variations in the percentages of those most uncomfortable are magnified when compared by age group. **Figure 8** provides the percentage of respondents in each age group who reported a comfort level of 1 or 2. The oldest age category had higher rates of discomfort for several forms of technology compared to their younger peers. For instance, 20 percent of respondents older than 50 were uncomfortable using social media, compared to 3 percent of respondents under 30 and 7 percent of those age 30-50.

Figure 8. Survey respondents not comfortable with using different technologies (score 1-2) by age group



Similar to the survey findings, the focus group discussions also revealed varying technological capacity and comfort with technology across the ECE stakeholders. For example, Quality Assurance Specialists discussed how some providers needed the most basic of assistance to submit forms and other documentation, as one respondent listed: *"How do you change the name of a document, how do you change it from one format to another, how do you delete e-mails, how to scan a document versus just taking a picture…. What is spam and … sometimes you need to check that … folder."* The lack of technology capacity among some providers created a strong preference for receiving hard copies of documents and engaging in in-person methods of communication/learning. Respondents noted that providers would benefit from basic training in fundamental computer skills like operating Microsoft Suite, sending an e-mail, attaching documents, coverting documents into PDFs, and uploading documents onto a platform or cloud drive.

At the same time, other ECE stakeholders were quite knowledgeable about technology and felt comfortable leveraging different types of technology for their work. Across the focus groups, participants spoke about a number of different platforms, software programs, and applications being employed to support the work of ECE PD professionals and providers. **Table 3** summarizes the platforms and software discussed across the focus groups. The table contains the overall purpose for which the technology is used, the different programs/software/applications used for the purpose, and how PD professionals and providers specifically leverage the technology in their work. As indicated in the table, a host of different technologies are used for a variety of purposes to support the work of ECE PD professionals and providers, ranging from learning management systems to gaming and polling applications. The table is not an exhaustive list of the technologies utilized, but rather highlights those that were a topic of conversation in the focus groups. As DEC continues to work to be responsive to the technology needs of ECE PD professionals and providers, it is important that they begin with an understanding of the most commonly used programs/software/applications in the state.

Table 3: Type of technology by platform and specific uses by stakeholder

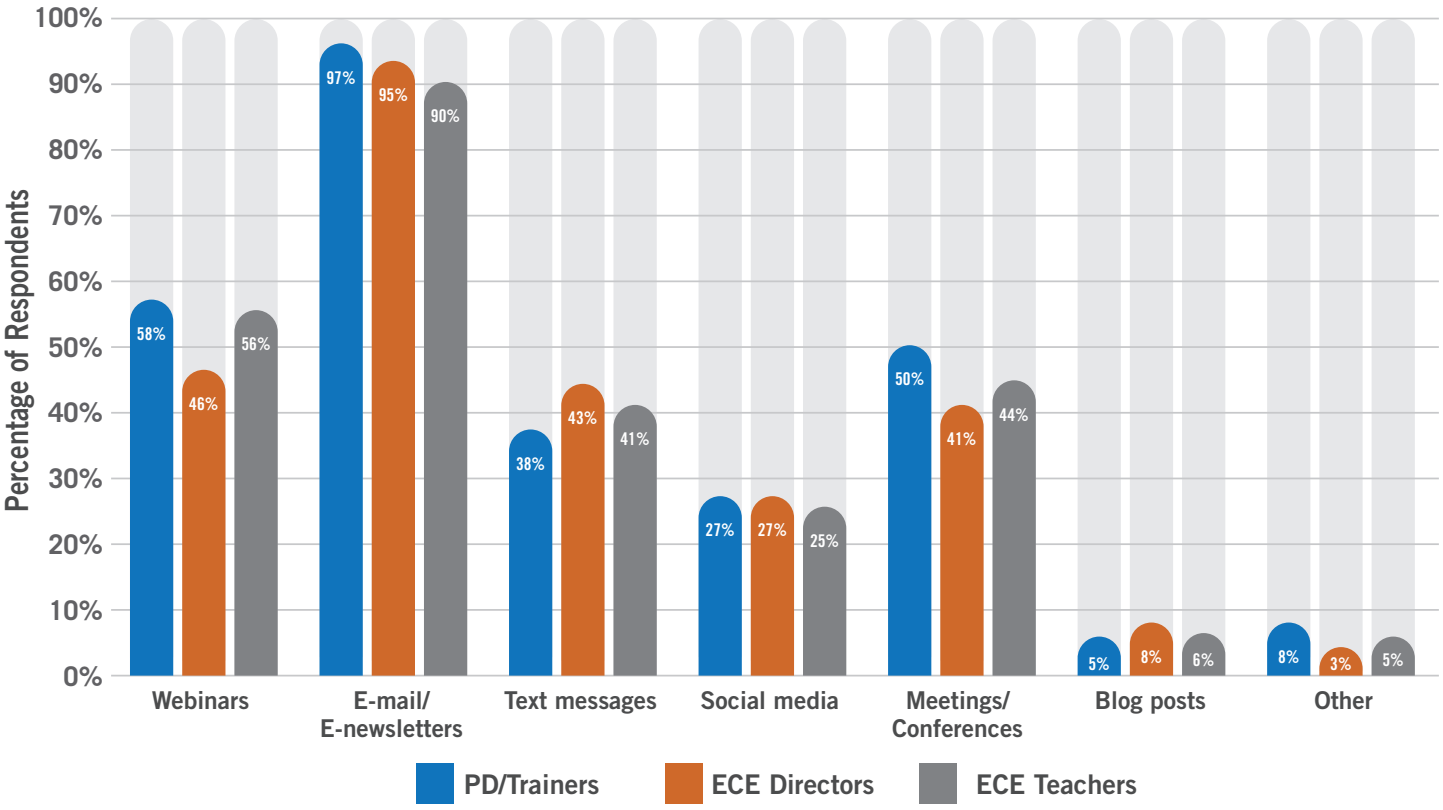
Purpose	Technological Platform	Specific Uses by ECE Professional Development/Training Community	Specific Uses by ECE Provider Community
E-mail/E-newsletter	**GovDelivery:** Web-based e-mail subscription management system that allows members of the public to subscribe to news and information on government websites **Mailchimp:** Marketing and e-mail management platform that allows users to create and manage mailing lists, newsletters, and automated campaigns **Constant Contact:** E-mail marketing and website builder platform that allows users to create and manage mailing lists and social media campaigns through easy-to-customize templates	Provide links to webinars, PDF resources, PowerPoints, reminders and invitations to community events, instructions to navigate toolkit for providers Scheduling site visits to centers/programs with providers Recaps of site visits with parents/schools	Communication with parents
Social Media	**Facebook, Instagram, Pinterest, Twitter:** Platforms that facilitate creation or sharing of information, ideas, and interests, as well as social networking	Giving tips to child care providers and parents	Advertising their center/program online Posting/sharing updates about the program with the parents Sharing photos of children in program with parents
Text Messaging	**Bright by Text:** Nationwide text messaging service that helps parents and caregivers of young children, through sending texts about free tips, information, games, and resources to its users	Communication with parents	Communication with parents
Web-based Surveys/Forms	**SignUp Genius:** Online software tool for volunteer management and event planning **Survey Monkey:** Online survey software that allows users to develop, distribute, and analyze surveys	Collect information about provider interests in topics they would like training on, issues in their community that they would like addressed, resources they would find helpful, challenges, and requests for support	Not discussed/used
Cloud Sharing Services	**Google Drive:** File storage service that allows users to store, synchronize, and share files **Nextcloud:** File hosting service to upload and share files	Accessing files and forms that centers and providers submitted Sharing materials/documents among trainers in different districts	Sharing photos with parents by uploading pictures of their children on Google Drive and sharing the link
Virtual Meeting/Webinar Technology	**Zoom, GoToMeeting, WebEx, Google Meet:** Web-conferencing videoconferencing applications	Conducting professional development trainings in a webinar or livestream format so that providers and participants can join remotely	Hosting virtual meetings
Gaming/Polling Applications	**Kahoot:** Game-based learning platform used as learning technology **Poll Everywhere:** Platform for classroom and audience response systems	Applications can be used in professional development trainings as an interactive component with the participants and to collect additional information to inform learning	Not discussed/used
Learning Management Systems	**Blackboard, Canvas:** Learning management systems that allow teachers and students to interact and share documents/course materials	Online instructors are able to see where participants are in terms of course content and manage them accordingly	Not discussed/used
Business Management Platforms	**QuickBooks:** Accounting software for managing business payments, bills, and payroll functions		Managing receipts and finances by scanning the receipts with a mini receipt scanner, then using a software application to organize receipts by category, as well as pull up reports by category

Finding 3: ECE Stakeholders have clear preferences for the technology used to communicate with families and MSDE.

While ECE stakeholder comfort levels vary across different types of technology and platforms, stakeholders have a clear preference for the ways in which they wish to communicate. The increased reliance on technology—particularly the now ubiquitous role of smartphones in our daily lives—has expanded the number of ways in which DEC can communicate with the ECE stakeholder community and ECE providers can communicate with parents. National research indicates that smartphones (i.e., iPhone or Android devices) are the primary way in which individuals access the internet, and that in 2019, approximately one in five American adults owned a smartphone without having traditional home broadband service.[6]

Despite the proliferation in smartphone usage, the survey revealed that ECE stakeholders still prefer e-mail and e-newsletters over all other methods of communication, including text messages. Across roles, stakeholders indicated that their preferred means of communication from DEC were e-mail/e-newsletters (94 percent), followed by webinars (49 percent), text messages (42 percent), and meetings/conferences (42 percent).[7] These preferences continued when responses were broken down by age group, with stakeholders of all ages preferring e-mail/e-newsletters for communications from DEC, and those under age 30 indicating stronger preferences for text messages, meetings/conferences, and social media than those in the 30-50 and over-50 age groups. (See **Figures 9** and **10**.)

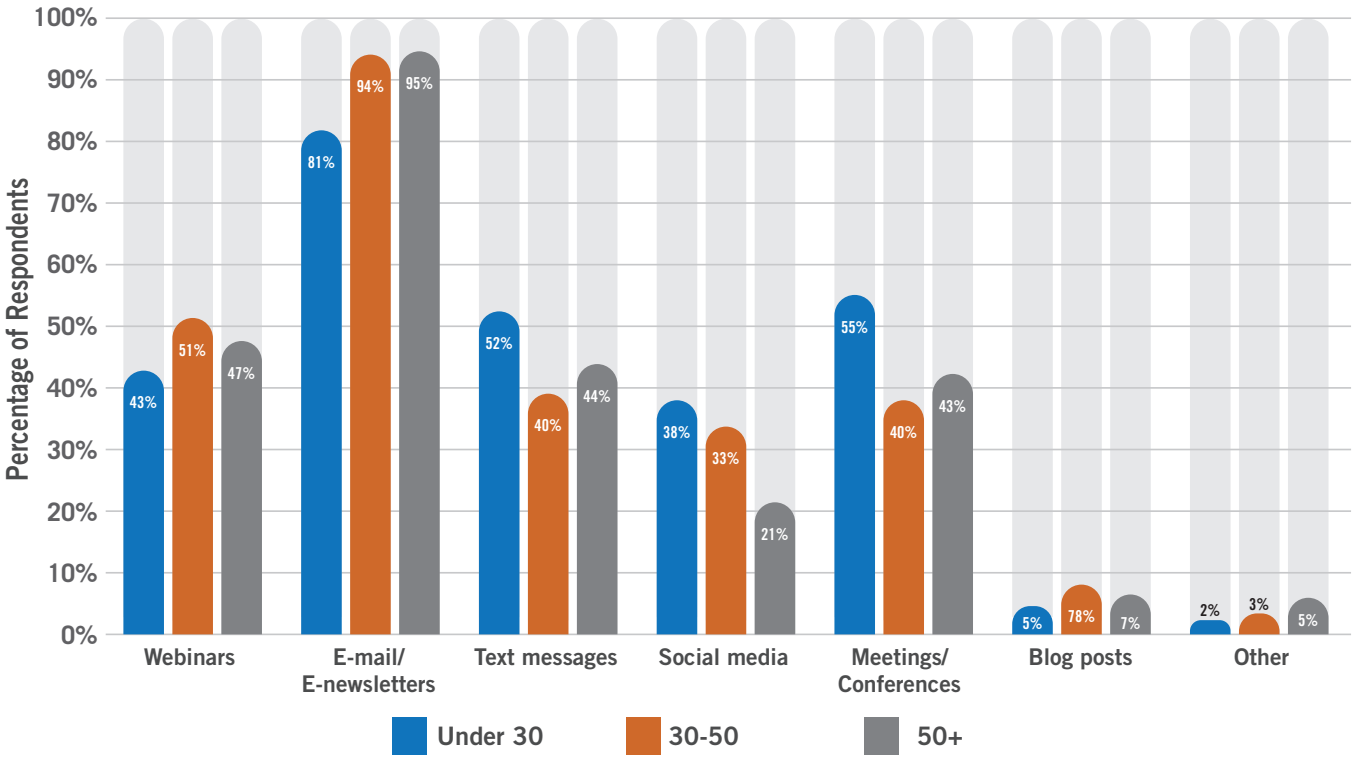
Figure 9. Preferred means of communication from DEC/MSDE, by ECE role



[6]Pew Research Center. Internet/Broadband Fact Sheet. https://www.pewresearch.org/internet/fact-sheet/internet-broadband/. Accessed April 22, 2020.

[7]Percentages total over 100 percent as participants were able to select multiple forms of communication.

Figure 10. Preferred means of communication from DEC/MSDE, by age group



When asked about their use of technology for communication with parents and families, e-mail once again topped the list, with ECE directors and teachers reporting they mainly used e-mail/listservs (70 percent), followed by text messages (55 percent), social media (38 percent), and program websites (33 percent). (See **Table 4**.)

Table 4. Most common technology resources used by ECE directors and teachers to communicate with parents and families

Technology Resource Used to Communicate with Parents and Families	Stakeholder Group
E-mail/listserv	70%
Text messages (e.g., Bright by Text)	55%
Social media (e.g., Facebook, Twitter, Instagram)	38%
Program website	33%
Mobile applications (e.g., Tadpoles, Class Dojo, Brightwheel)	29%
Online child assessments (e.g., TS Gold)	10%
Newsletters/letters/printed materials	3%
In-person conversations/conferences	2%
Phone calls	1%
Other	<1%

Focus group participants discussed the proliferation of smartphones and the implications for the ways in which stakeholders prefer to communicate. The focus group of DEC staff and Quality Assurance Specialists discussed how many ECE stakeholders are more comfortable using their smartphones than using desktop computers or laptop devices. For example, one Quality Assurance Specialist said, *"Some of the providers are so phone savvy.... I mean they could do their taxes on their phones, but to open the laptop and do anything there, they cannot do it."* However, focus group participants noted that this could lead to problems when DEC communications and trainings are not purposefully

designed to be accessed through smartphone devices. Another participant mentioned, *"Providers now are trying to use their smartphone to create everything as opposed to using a desktop or a laptop, and it poses problems for creating documents or uploading them."* One DEC participant mentioned how these preferences should be taken into account when trainings and communication platforms are designed, citing how *"Almost every provider has a smartphone, so if we can link some of the technology on how they can access it on their smartphone and training on that, I think we might get a little bit more from them that way."*

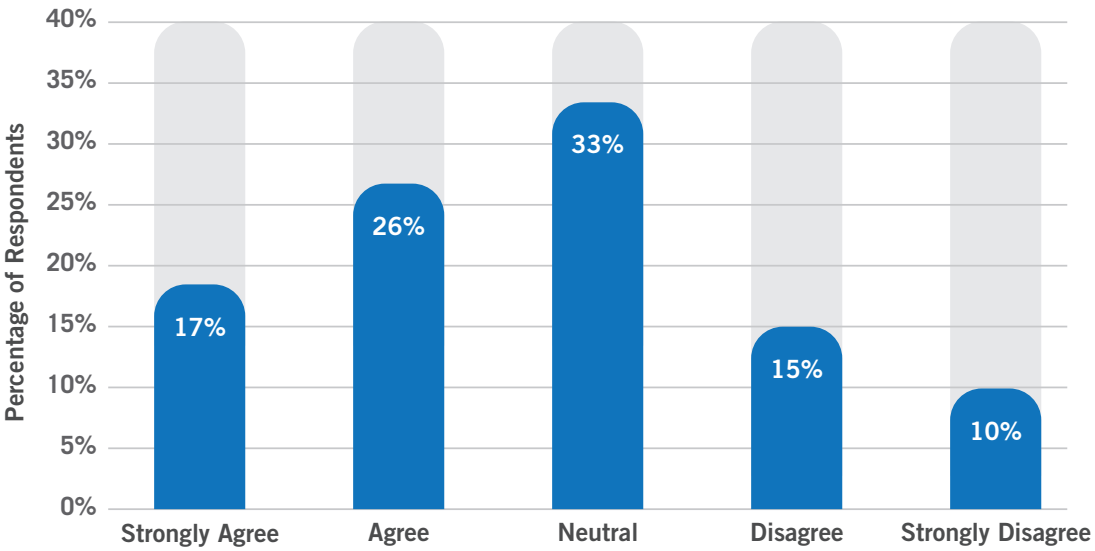
Several family child care providers discussed their preference for sending e-mails or text messages on their smartphone devices because it is quick and less disruptive to their work in the classroom. For example, one provider said, *"To me, it's just easier to send a text or an e-mail [from my phone] when I'm thinking about something.… I'm not interrupting somebody else's day or maybe I have a couple of quiet minutes or my kids are down or whatever, and I can shoot a text or an e-mail real quick."* Another provider explained, *"… all of us use our phones because we're working with children. I have my e-mail connected to my phone so I can check my e-mails anytime during the day [be]cause it's on my phone. [In reference to desktop computers] I would have to stop and go and sit at my desk. I don't have that luxury."*

Due to the wide range of technological capacity across the ECE community, a mix of traditional and online methods of communication should be employed by DEC to ensure broad reach. In particular, PD/training professionals mentioned they must "hit all aspects of communication" in their work to ensure they are able to reach a range of providers, regardless of their level of expertise. One trainer spoke about this issue during the focus groups: *"And what we have really learned is that there is no one size fits all and that you need to post it on social media, send it in an e-mail app, put it in a paper newsletter, put it on a website, [and] do a hard mailing if it's something that important. I mean, we have such a range of our providers between ages, abilities, learning styles, all of it. There is no one size fits all and that no matter what we put out there you need to put it out 97 ways.…"*

Finding 4: A large percentage of ECE stakeholders must rely on informal supports when issues with technology arise.

The survey and focus groups also examined where ECE stakeholders obtain technical support when technology problems arise. ECE stakeholders cited the need for reliable technical support, with less than half of survey respondents agreeing or strongly agreeing that they have access to IT support (see **Figure 11**). While some supportive staff may be available through agreements with a university IT department, these resources may be underutilized or not viewed as a reliable source of support for ECE providers. For example, one ECE professional who provides training at a college noted, *"We have an MOU with the school but not necessarily just the IT person. And when we call, we might get a reply that day, but it may be two or three days later because we're not at the top of the list. Especially during class time and it's like students and faculty have priority. So, it can be a while."* Other focus group participants mentioned technical support is available in multiple ways—online, by phone, and immediate/on-demand—through county-level resources and Child Care Resource Centers, but they were not certain that all ECE providers across the state have access to that same level of technical support.

Figure 11. Percentage of respondents with access to technical support



As a result, the state's ECE stakeholders have largely relied on informal sources of support to resolve their technological issues even before the COVID-19 pandemic. For example, 41 percent of respondents reported they depend on family members such as a spouse, older children, or grandchildren to help solve their technical problems, followed by dedicated IT staff (27 percent), and Child Care Resource Center staff (10 percent) (see **Table 5**). Family child care providers, in particular, spoke about their need for an on-demand support hotline and more in-person training opportunities specifically on the topic of technology: "*We need support that we can call, like a number or two, once they come out to train us, tell us what they expect, what level of technology they expect us to know in order to access all this information or whatever they want to send us online. Then they should also have a support number or, you know, someone that we can call if we get into a jam and tell them what we did.*" Another noted, "*We need more technology training. We need more support. We need a technical phone number or physical hotline that we can go through … and if they can offer through a grant or through MSDE that they can go and train providers regardless of their capacity and location, that would be great.*"

Table 5. Sources of support to resolve technological issues

Source of Support	% of Respondents Using Source of Support
Family member (e.g., spouse, older children, grandchildren)	41%
Dedicated Information Technology (IT) staff on-site	27%
Child Care Resource Center staff	10%
Off-site/personal IT contact	5%
Maryland EXCELS Quality Assurance Specialists	5%
Other staff members/colleagues	2%
Friends/acquaintances	2%
MSDE Communications Specialist staff	1%
Other	8%

Finding 5: The lack of technological access, competencies, and support significantly impacts the ability of stakeholders to improve administrative functions, access professional development, and facilitate communications.

The technology issues identified by ECE stakeholders have direct impacts on the ability of ECE providers to engage in activities related to overall program quality. These activities include receiving communications, meeting administrative requirements, accessing professional development, and managing business tasks.

Receiving information and updates from DEC/MSDE

ECE stakeholders rely on technology to receive timely communications from DEC on a number of topics, and this reliance was even more prevalent in the wake of the COVID-19 crisis. When asked about their biggest barriers to technology, providers noted the link between technology and receiving critical updates from DEC/MSDE. For example, one expressed frustration at "*not being [able] to find all the information that was needed to keep up with updates for COVID-19 and when they went into effect,*" while another mentioned, "*I have run into a few older providers that are having a challenging time keeping up with everything with COVID and what's allowed and not allowed.*" Even outside of the rapidly changing policy environment of the pandemic, it is important for DEC to be able to quickly disseminate program updates to all ECE stakeholders across the state in a comprehensive manner.

Meeting various administrative requirements

A number of providers spoke about their use of technology for administrative functions related to their program, including student records, staff requirements, assessment data, and document submission requirements for Maryland EXCELS. The lack of technology capacity and access across the state limits the ability of DEC to fully move to a paperless system. ECE stakeholders mentioned that taking into account the competencies of providers when designing systems for administration would support increased utilization. Focus group

participants, for example, mentioned that they would like to see a modernized system for uploading required documents, suggesting that DEC *"create a better website and interface for child care providers to access and submit data, track progress of Personnel Qualification Evaluation (PQE) and other requests, monitor how long things are taking, and better communicate with providers."*

Participating in online collaboration, lesson planning, professional development, and training opportunities

Providers without sufficient access to or comfort with technology may be unable to fully participate in professional development and other training opportunities delivered online. For example, one training professional noted that *"Some [providers] connect only by phone to webinars. It limits my ability to offer additional online tools like polls or quizzes as part of trainings, because I know that it will be hard for some providers to access multiple things on their phone."* Several stakeholders talked about the use of technology for conferring with their peers, lesson planning, and getting ideas for arts and crafts, songs, and other activities, while others used the internet for videos and visual supports as part of classroom instruction.

Communicating with families and engaging children in developmentally appropriate virtual learning during the pandemic

Many programs discussed using technology to communicate with and market their program to families of the young children they serve. For example, one said, *"I have a website, so on my website there's a link where they [parents] can e-mail me if they're looking for information or if they want to schedule an interview and then from there, I can respond back to them.… Then, before they set up an appointment, they kind of know what they're getting into. Making sure that what I offer is really what they're looking for before they spend that time then to come to me."*

Others talked about the importance of technology to offer virtual learning opportunities during the COVID-19 pandemic. One respondent wrote,"*… we have subscribed to various digital early learning programs to which we have given access to families to use with children age appropriately. In addition to this, we do video conferencing to assess the child's development in all the domains of learning."* Others were more concerned about issues of privacy, lack of sufficient access and capacity at the family level, and excessive screen time for young children.

Another issue highlighted by survey respondents is the need to address/translate communication materials into multiple languages spoken by the families they serve; for example, the need for a *"translator device for Spanish, Haitian Creole, and Korean to help speak with parents and translate documents and letters home."*

Managing business and administrative tasks through software systems

Providers with greater comfort using technology are also able to use various platforms to effectively manage their business, including tracking student growth, payroll, accounting, attendance, and entering information for the Child and Adult Care Food Program. For example, providers spoke about using accounting software (e.g., QuickBooks) and receipt scanners to easily track their expenses.

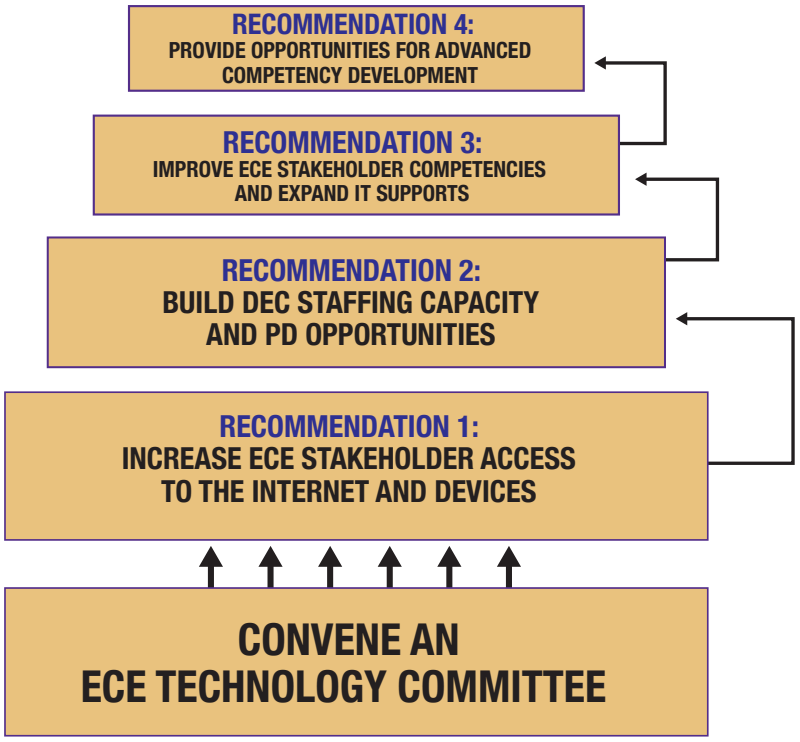
While several stakeholders understood the limitations that come with low levels of technology capacity, other respondents expressed insufficient knowledge about where to start or how technology can be used in an ECE setting. For example, one survey respondent said, *"I have no computer training and do not use computers, apps, and other technology because I am not comfortable with my skills and simply do not know how to operate computers,"* while others wrote, *"Because I am a new learner, I have a tendency to disengage. I am intentionally seeking training to build my confidence. I welcome online training classes,"* and, *"I don't feel as if I have enough training to adequately use [technology] with the parents on a daily basis."* These providers, in particular, would benefit from 101 trainings or tutorials on how technology can be used to improve their ECE program. One provider noted, *"It doesn't even have to be mandatory. It's just that it's not being offered. All the classes that are being offered are all child care-related and it's for hours and hours. We need some technology classes."*

Recommendations

The survey and focus group findings highlight several challenges that will need to be addressed by DEC to support the effective utilization of technology by Maryland's ECE community. As indicated in **Figure 12**, the recommendations in this section are listed in a specific order, with foundational recommendations to be implemented first (Recommendations 1 and 2) so that more advanced strategies can subsequently build off of those efforts (Recommendations 3 and 4). Implementation of the recommendations would be guided by an ECE technology committee convened to advise and support this work. This committee would work to ensure that ECE stakeholder technology needs remain at the forefront of early childhood system conversations, and would be responsible for developing an action plan for implementing the recommendations below as well as identifying future funding opportunities to support technology enhancement.

In this scaffolded approach, DEC would place a priority on the foundational issues of access to internet connectivity, hardware, and software, as well as DEC capacity (in-house IT expertise and professional development offerings). Supporting these foundational issues will make it possible for DEC to effectively improve the technological competencies of stakeholders, better support their IT needs, and ultimately allow for their advanced competency development. While the recommendations do not have to be addressed sequentially, each recommendation addresses a condition that will allow subsequent recommendations to be more impactful. For example, no increased amount of DEC capacity will support the effective utilization of technology for a large portion of the stakeholder community if nearly one in five stakeholders continues to struggle with access to the internet. These recommendations are discussed in detail below in order of priority.

Figure 12. Recommendations to support Maryland ECE stakeholders in leveraging technology



Recommendation 1: Increase ECE Stakeholder Access to the Internet and Devices

The COVID-19 pandemic and resulting school and ECE program closures in Maryland and across the country have highlighted the dramatic "digital divide" between higher-income families and their less well-off peers. This conversation, however, has largely taken place within the context of student learning in PreK-12 schools. As discussed earlier, nearly one in five ECE stakeholders surveyed has unreliable or slow internet, and 69 percent of respondents noted that they would like to see the state focus on meeting the need for computers, laptops, and other devices. In other words, the work of ECE stakeholders is being crippled by a lack of access to reliable high-speed internet and hardware. This was a significant issue before the pandemic, and it has been exacerbated by the increased demand for reliable internet and hardware caused by the closures.

Identify and publicize state and local sources of funding to support ECE stakeholder access in bridging the digital divide

DEC and the Maryland ECE stakeholder community must look outside of MSDE and the ECE field to several ongoing state and local efforts to build technology infrastructure and address the digital divide. Much of the work to support internet and hardware access in Maryland is occurring in other agencies at both the state and local level, and these resources can be better identified, publicized, and leveraged to address the technology issues faced by ECE stakeholders. Key examples include:

Maryland's statewide information technology master plan: Maryland's Department of Informational Technology (DoIT) has developed a master information technology plan that highlights ways in which the agency is actively supporting Governor Hogan's efforts to make high-speed internet available to everyone across the state by 2022 (see statewide IT strategic plan). This plan also includes the development of MD THINK, the cloud-based platform that will host DEC's integrated early childhood data system. DEC must continue to connect with and leverage the work, initiatives, and funding that may be available from DoIT to improve the access and technological capacity of Maryland's ECE stakeholders. The initiatives of the master plan, like the integrated early childhood data system, cannot be successful without access to the internet and devices by all Maryland ECE stakeholders.

Rural broadband efforts: The state's Office of Rural Broadband also works to ensure that rural Marylanders have access to broadband services, offering funding and technical assistance to help entities qualify for federal financing opportunities. For example, the Assistance for Broadband Expansion Pilot Projects program offers grants of up to $200,000 to local jurisdictions for 50 percent of the construction costs related to an internet service provider (ISP) extending service to unserved households, and the Broadband Infrastructure Network Buildout Program offers grants between $1–3 million to local jurisdictions or their ISP partners to construct new broadband networks to service unserved, rural households. At the very least, Local Early Childhood Advisory Councils (LECACs) should investigate these grants and seek to partner with local entities to draw down this funding to support internet access for ECE stakeholders, and home-based providers in particular.

E-Rate: In addition, the Federal Communications Commission's E-Rate program makes telecommunications services more affordable by allowing public or private PreK-12 schools, libraries, and groups of schools and libraries to apply for discounts on eligible services, including internet, telecommunications, and equipment. In Maryland, PreK programs and Head Start programs are eligible if they are part of a public school district or stand-alone facility recognized by the state.

Stimulus funding: The state should consider using some of its *Coronavirus Response and Relief Supplemental Appropriations Act, 2021* funding to address ECE digital divide issues. The state has already allocated $15 million in CARES Act and Governor's Emergency Education Relief funds to building broadband access, including the construction of a wireless education network. This funding is discussed and allocated within the context of supporting PreK-12 education, so it will be important to collaborate with the PreK-12 system to support technological issues within the ECE community, particularly for ECE providers that are supporting school-aged children.

Partner with school districts to leverage investments to increase access to the internet and devices

During the COVID-19 pandemic, Maryland school systems have used federal and state funding to increase the capacity of schools and families to engage in remote learning. For example, Carroll and Cecil Counties offered hotspots in school parking lots and offered mobile hotspot devices to 150 families. In Kent County, school buses are being outfitted with wireless internet to expand connectivity. The ECE community should work to leverage these investments made by PreK-12 school districts to support ECE stakeholders. Assuming there will be a time when PreK-12 students are back to in-person learning and these supports are no longer needed at the same level they are during the pandemic, ECE stakeholders in these communities may be able to negotiate with school districts to use these resources for their programs. Judy Centers and LECACs can play a role in making connections between schools willing to share devices and other technology resources with ECE programs in their community.

Create expanded access to the internet and devices through partnerships with libraries and community spaces

Before the pandemic, many ECE stakeholders accessed the internet through computer labs at their local library and other community spaces. DEC can consider leveraging its current partnership with libraries and provide additional funding to expand these labs and reserve

hours for ECE providers. When pandemic restrictions and closures are lifted, DEC can also consider strategically placing IT support in library locations at certain times for providers to seek technology assistance. Another strategy is for DEC to offer mobile kiosks that move between communities in rural areas to allow ECE providers to access the internet to submit information to DEC during certain times.

Create more flexibility in DEC's current ECE grants to ensure that ECE stakeholders can purchase internet access and devices

While it may be difficult to find additional funding for internet and hardware, DEC can work to ensure that current grants and funding resources for ECE stakeholders either provide additional flexibility or are specifically targeted for technology needs to allow providers to purchase necessary internet access, hardware devices, and upgrades to software. This approach was used in the recent Prekindergarten Expansion Grants, which listed the purchase of technology as an allowable use of funds. Another approach may be to use Child Care and Development Block Grant quality set-aside funding for technological enhancement grants similar to the quality enhancement grants available to ECE providers.

Recommendation 2: Build DEC Staffing Capacity and PD Opportunities

Another foundational component of building the technological capacity of ECE stakeholders is increasing the capacity and technological expertise of DEC. This capacity and expertise are particularly important for DEC's continued work on the state's integrated early childhood data system. As DEC hires staff to support implementation and use of the system, it will be important that the IT staffing structure includes in-house IT staff with expertise that can support multiple functions within DEC like updating web-based resources, website compliance, and resolving technology issues as they emerge. Equally important, DEC IT staff would fulfill the role of providing strategic support in successfully rolling out technology solutions to meet the needs of the ECE stakeholder community statewide.

At a minimum, DEC should hire no fewer than two positions to ensure adequate staffing and expertise in the area of IT/technology. The staff would liaise with Maryland DoIT on behalf of DEC to provide IT support to DEC staff and ensure that DEC complies with federal and state requirements regarding website accessibility and other rules and regulations. The staff will also serve on the DEC leadership team to ensure that a technological perspective is represented across DEC initiatives and is a part of the Division's change management strategies. These include the integration of the Child Care Administration Tracking System (CCATS) into MD THINK and data literacy training for DEC staff to support program quality improvement.

Recommendation 3: Improve ECE Stakeholder Competencies and Expand IT Supports

Leverage successful models for technology training and expand current offerings

There is a strong demand and interest across the ECE community for increased hands-on technology training and workshop sessions on a range of topics. If these trainings are to be delivered by the Child Care Resource Centers, additional funding should be invested to expand their hours of operation and ensure all counties have access to similar technology training content. For example, Rhode Island's Child Care and Development Fund (CCDF) plan outlines the state's strategy to have their PD contractors "design and implement technology training to support CCDF provider proficiency in the use of computers to support engagement with state reporting requirements, best business practices…" and other skills needed for quality improvement. It is important that provider schedules are taken into account when delivering in-person/virtual trainings, with a preference for night and weekend time slots rather than weekdays. DEC can also consider posting a number of "how-to" videos online to assist with some of the more frequently asked technology questions posed by ECE providers.

Develop a system for reliable technical support

The state can explore a system that offers reliable, formal technology support to the ECE community, regardless of program type or geographic location. One way to leverage the range of technical assistance supports already offered to providers by DEC is to implement a train-the-trainer approach across the ECE technical assistance infrastructure, ensuring Quality Assurance Specialists, licensing specialists, Child Care Resource Centers, Judy Center coordinators, early learning coordinators, and family support centers receive professional development to better support providers with their technical needs. The state can also help alleviate the inefficiencies of individual providers obtaining technical support by exploring the use of a shared services model that centralizes and streamlines business functions such

as technology support. For example, the state can use funds to contract with an entity—for example, Child Care Resource Centers—that would allow ECE providers to become a part of the shared services network and share IT support resources. This technology study also highlighted successful models that could be replicated or expanded, including a mentorship program in use by family child care providers, and the need for a technology support hotline with on-demand live support. These solutions should be developed in conjunction with the state's IT department and local provider associations to ensure they are delivered in ways that are effective for a range of ECE providers.

Recommendation 4: Provide Opportunities for Advanced Competency Development

Align digital literacy skill development efforts with the goals of Maryland's Prenatal to Age 8 Strategic Plan

A key goal outlined in Maryland's Prenatal to Age 8 2020–2025 Strategic Plan is to modernize and maximize data systems to support effective communication and coordination for the early childhood system. In order to successfully meet this goal, it is critical that all ECE stakeholders in the state have the skills necessary to collect, report, and analyze data to inform and improve their work as an educator, researcher, or policymaker. To align with this goal of the strategic plan, DEC should work to develop technology trainings in data-driven decision-making, using technology for continuous quality improvement, and delivering developmentally appropriate teaching using technology—in addition to the more basic trainings needed by a large portion of the ECE stakeholder population.

Model technology trainings on other successful leadership training efforts

Maryland has already employed successful strategies that can be used as a model for technology trainings. For example, in 2019, MSDE partnered with the Annie E. Casey Foundation to provide LECACs with leadership training in the skills required for equitable action, adaptation, and community capacity development. Through a series of two-day Results Count Leadership Institute workshops, LECAC members discussed and practiced key competencies in the more equitable use of state and local resources for the improved well-being of young children and their families. A similar approach can be applied to the design and delivery of technology trainings to a broad range of ECE stakeholders to ensure everyone has the capacity to use technology to inform decisions related to early childhood programs and services.

Conclusion

With DEC increasingly relying on technology to administer ECE programs, provide professional development, and communicate with stakeholders, the barriers to access and lack of technological competencies among ECE stakeholders will be a major impediment to taking the next steps in the state's ECE systems-building efforts. Implementation of the recommendations discussed above will help DEC realize its vision for an efficient and effective system that promotes the well-being of children and families in an equitable way across the state.

APPENDIX A

Focus Group Facilitation Guide: Professional Development/Trainer

Introduction

Thank you all for taking the time to talk with us today. The Maryland State Department of Education (MSDE) is seeking to better understand the technological capabilities of early childhood providers and those who offer early childhood professional development in Maryland. The information that is shared during today's conversation will help to inform the development of an early childhood technology plan for Maryland.

To examine this issue, MSDE has commissioned the Policy Equity Group, LLC to conduct a series of stakeholder focus groups that will be used to inform an early childhood technology plan and provide recommendations to increase the technological capacity of Maryland early childhood stakeholders. As technology plays a larger role in the way early childhood providers receive professional development and communicate with MSDE, other stakeholders, and parents, it is important for MSDE to have a better understanding of the technological capacity of early childhood stakeholders in Maryland.

As a stakeholder in Maryland's early childhood community, your participation in this focus group is greatly appreciated. Participation is voluntary and all information provided will be kept confidential and only be viewed by the research team. In the final early childhood technology plan that uses this information, findings from the focus groups will only be reported in the aggregate by role, program, and geographic area of the state.

Defining Technology

For the purposes of this focus group, the term "technology" is defined broadly to include e-newsletters, webinars, blog posts, text messages, social media (e.g., Facebook, Twitter, Instagram), online applications, and other web-based resources used to communicate with early childhood providers and/or families of young children.

Informed Consent

This conversation should last about an hour. We will be recording the conversation only for transcription purposes to make sure that we are accurately capturing your thoughts and feedback. The information from the focus group will be combined with input from other stakeholder focus groups and the findings will be put in a report with recommendations to help MSDE increase the technological capacity of the state's ECE stakeholders. We may use quotes from the focus groups in the report, but quotes will not be attributed to a specific person.

Does that sound okay to everyone? Are there any questions before we begin? Thank you, let's get started.

Questions

1. **We are interested in understanding the ways in which you currently use technology to communicate with and train the ECE provider community. How is technology currently being used in your work?**
   a. To deliver PD/training opportunities (online workshops, trainings)
   b. To share information on program quality improvement initiatives (Maryland EXCELS toolkit, family engagement toolkit, etc.)
   c. To promote communication and/or collaboration among ECE educators
   d. To communicate with families and/or the community
   e. Other?
2. **We are interested in learning the types of technology used by MSDE to communicate with the ECE community. What types of technology do you use in your work?**
   a. From your perspective, what are ECE providers' preferred methods of communicating information related to ECE?
      i Internet
      ii. Social media

iii. *Online applications or "apps"*

iv. *Blog posts*

v. *Webinars*

vi. *Online training modules*

3. **What are the biggest barriers that are faced by the PD/trainer community when it comes to technology?**

4. **What are the biggest barriers that are faced by the ECE provider community when it comes to technology?**

5. **We are interested in understanding whether you can access support when issues arise when you use technology, and if you have sufficient staff capacity and infrastructure to support the effective use of technology in the PD/training that you provide. When you have an issue with technology, what options are available to you for technical support?**

   a. For example, is a knowledgeable person available to help you resolve the issue (e.g., assistance with using software, getting online, troubleshooting computer issues)?

6. **If you received technical support in the past six months, what did you find the most helpful for your work?**

   a. Formal, in-person trainings

   b. One-on-one training sessions by appointment with technology staff

   c. Informal point-of-need assistance

   d. Access provided to online trainings

7. **We are interested in hearing your ideas for steps the state can take to increase the technological capacity of Maryland's ECE PD/training community, including the types of information that would be most beneficial to you. What state-level policy or system enhancements should be implemented to support the increased technological capacity of the PD/training community?**

   a. For example, additional staff training on certain topics, better connectivity, additional staff members to resolve technical support questions?

8. **What state-level policy or system enhancements should be implemented to support the increased technological capacity of ECE providers?**

   a. For example, technology resources/training, provider and PD knowledge and competencies, technical assistance?

9. **As part of our data collection process, we will be conducting an online survey to further assess the technological capacity of the ECE provider community. From your perspective, what questions regarding technological capacity are the most important to ask of the ECE provider community in the online survey?**

Conclusion

Thank you so much for being a part of this conversation. Before we close, are there other things that you wanted to talk about related to early childhood technological capacity that I did not give you the opportunity to talk about?

APPENDIX B

Focus Group Facilitation Guide: ECE Provider

Introduction

Thank you all for taking the time to talk with us today. The Maryland State Department of Education (MSDE) is seeking to better understand the technological capabilities of early childhood providers and those who offer early childhood professional development in Maryland. The information that is shared during today's conversation will help to inform the development of an early childhood technology plan for Maryland.

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Defining Technology

For the purposes of this focus group, the term "technology" is defined broadly to include e-newsletters, webinars, blog posts, text messages, social media (e.g., Facebook, Twitter, Instagram), online applications, and other web-based resources used to communicate with early childhood providers and/or families of young children.

Informed Consent

This conversation should last about an hour. We will be recording the conversation only for transcription purposes to make sure that we are accurately capturing your thoughts and feedback. The information from the focus group will be combined with input from other stakeholder focus groups and the findings will be put in a report with recommendations to help MSDE increase the technological capacity of the state's ECE stakeholders. We may use quotes from the focus groups in the report, but quotes will not be attributed to a specific person.

Does that sound okay to everyone? Are there any questions before we begin? Thank you, let's get started.

Questions

1. **We are interested in understanding the ways in which you currently use technology in your role as an ECE provider. How are you currently using technology in your program?**
   a. To participate in PD/training opportunities (online workshops, trainings)
   b. To access information on program quality improvement initiatives (Maryland EXCELS toolkit, family engagement toolkit, etc.)
   c. To engage in communication and/or collaboration with other ECE educators
   d. To communicate with families and/or the community
   e. Other?
2. **We are interested in learning about ECE providers' preferred methods of receiving and communicating information related to ECE. What types of technological platforms do you prefer to use?**
   i. Internet
   ii. Social media
   iii. Online applications or "apps"

iv. *Blog posts*

v. *Webinars*

vi. *Online training modules*

3. **What are the biggest barriers that are faced by the ECE provider community when it comes to technology?**

4. **We are interested in understanding whether you can access support when issues arise when you use technology, and if you have sufficient staff capacity and infrastructure to support the effective use of technology in your program. When you have an issue with technology, what options are available to you for technical support?**

   a. For example, is a knowledgeable person available to help you resolve the issue (e.g., assistance with using software, getting online, troubleshooting computer issues)?

5. **If you received technical support in the past six months, what did you find the most helpful for your work?**

   a. Formal, in-person trainings

   b. One-on-one training sessions by appointment with technology staff

   c. Informal point-of-need assistance

   d. Access provided to online trainings

6. **We are interested in hearing your ideas for steps the state can take to increase the technological capacity of Maryland's ECE provider community, including the types of information that would be most beneficial to you. What state-level policy or system enhancements should be implemented to support the increased technological capacity of the ECE provider community?**

   a. For example, technology resources/training, on-demand technical support?

7. **As part of our data collection process, we will be conducting an online survey to further assess the technological capacity of the ECE provider community. From your perspective, what questions regarding technological capacity are the most important to ask of the ECE provider community in the online survey?**

Conclusion

Thank you so much for being a part of this conversation. Before we close, are there other things that you wanted to talk about related to early childhood technological capacity that I did not give you the opportunity to talk about?

APPENDIX C

Stakeholder Perspectives on Improving the Technology Capacity of Maryland's Early Care and Education System: Focus Group Summary

Introduction

State education agencies are increasingly looking to technology as a vehicle to efficiently train and communicate information to different stakeholder audiences across the state's early care and education (ECE) system. In order for a state's ECE training and communication systems and processes to be equitable and effective, they must be designed in a way in which all stakeholders are able to access and utilize the information being provided. This ability to understand and effectively use technology is a critical skill for ECE educators, those who provide training and/or professional development, and families with young children in order to benefit from state-of-the-art training and dissemination methods. The current COVID-19 crisis and associated social distancing measures have only further emphasized the need for states to assess and increase the technological capacity of those working across the ECE system.

The Maryland State Department of Education (MSDE) has made enhancements to its training and communications infrastructure and processes in recent years, underscoring the need to assess the technological capacity of Maryland's ECE educators, professional development (PD) and training providers, and families. To help MSDE have a better understanding of the technological capabilities of ECE educators and those that provide ECE professional development in Maryland, the Policy Equity Group is conducting a study to assess the technological capacity of Maryland's ECE stakeholders. This report offers a summary of findings from the first phase of the study, a series of focus groups which, along with a stakeholder survey to be administered in June 2020, will inform a technology plan with policy recommendations to support and inform the state's ECE communications efforts.

Methodology

To ensure participation from an array of ECE stakeholders with varying levels of technology expertise, the Policy Equity Group facilitated a series of five focus groups reaching approximately 60 stakeholders from February 11–March 19, 2020, including three focus groups with members of PD/training community, one focus group with MSDE communications staff, and one focus group with family child care providers.[8] Four of the five focus groups were conducted in-person, while one was conducted virtually (see **Table 1**).

Table 1: Stakeholder Focus Group Summary

Group	Stakeholder Group	Date	In-Person or Virtual	# of Participants[9]
1	MSDE Staff	2.11.2020	In-person	8
2	MD EXCELS Quality Assurance Specialists	2.20.2020	In-person	19
3	Family Child Care Providers	3.09.2020	In-person	11
4	ECMH Consultants	3.11.2020	In-person	10
5	PD Trainers	3.19.2020	Virtual	8

[8]Due to necessary precautions taken by the Maryland state government to limit the spread of COVID-19 in March 2020, the research team was unable to conduct additional focus groups with ECE providers as originally planned. Consequently, the focus group perspectives collected from stakeholders, particularly ECE providers, to inform this summary were limited in scope and should not be interpreted as representative of the entire Maryland ECE stakeholder community.

[9]These focus groups were held in the weeks immediately leading up to the shutdown of the state because of the COVID-19 pandemic. Respondents were given the opportunity to join the March focus groups by phone. As such, it was more difficult to get an exact count of focus group participants.

The conversations focused on the following issues related to technological capacity in the ECE stakeholder community:

- current uses of technology by ECE providers and the PD/training community;
- preferred technological platforms and methods of communication for providers and parents;
- barriers faced by ECE stakeholders regarding use/access of technology for their work;
- available options for technical support and troubleshooting; and
- state-level policy or system solutions to improve the technological capacity of Maryland's ECE stakeholder community.

Each focus group session lasted approximately one hour. Please see Appendices A and B for the PD/trainer and ECE provider facilitation guides. Each focus group was recorded and transcribed, after which transcripts were reviewed in order to identify key themes and perspectives for inclusion in this summary report.

Findings

The focus group discussions highlighted the variety of ways that technology is currently used by the ECE community, the challenges around access to technology and technical support, and suggestions for improvements that can be made at the state level to build additional technological capacity. Overall, ECE stakeholders expressed a need for more providers and trainers to have a baseline comfort level with using technology; hands-on training to help providers incorporate technology in ways that will ultimately enhance their program's operations, participation in PD, communication with families, etc.; and reliable access to technical support when problems arise. While some stakeholders are relying on their regional Child Care Resource Centers or EXCELS Quality Assurance Specialists as a source of technical support and IT expertise, there does not seem to be a central point of access that all stakeholders can use to resolve technical problems that impact their work. The focus group discussions also emphasized the need for long-term systemic improvements in statewide technology infrastructure and efforts to build internal staff capacity and modernization efforts at MSDE.

This summary is organized according to the following themes that emerged during the focus group sessions:

- The range of technological capacity and expertise varies widely across the ECE provider community, making it challenging to reach all providers with PD/training and other communications.
- Pressing needs related to technological infrastructure emerged from the focus groups that did not appear in the stakeholder survey, potentially due to selection bias (e.g., unreliable connectivity in rural areas and lack of updated hardware/software).
- An overall uneven access to technical support leads to "work-arounds" by providers (e.g., reaching out to family members).
- Providers expressed a need for both on-demand technical support along with hands-on technology training, with an emphasis on inclusivity and smaller group training for deeper engagement and individual support.
- In addition to these provider-level system enhancements, there is a need to build internal technological capacity at MSDE.

Range of technological capacity and use varies widely across ECE provider community.

The focus group discussions revealed a wide spectrum of technological capacity across the ECE community, from both the provider and the PD/trainer perspectives. For example, some providers are quite knowledgeable about technology and feel comfortable using multiple online platforms, while others have a strong preference for receiving hard copies of documents and engaging in in-person methods of communication/learning. Some providers would benefit from trainings on the fundamentals of using computers, such as how to operate Microsoft Suite, how to send an e-mail, how to attach a document, how to format documents into PDFs, or how to upload a document to a platform or cloud drive. As a result, PD/trainers mentioned they must "hit all aspects of communication" in their work to ensure they are able to reach a range of providers, regardless of their level of expertise.

The range of skills was not only limited to providers; focus group participants discussed how the training community also had varying levels of comfort and expertise regarding the use of technology and various technological platforms:

> "When visiting programs, providers, they will have WiFi [connectivity]. They just may not know their password, which causes a delay in us getting together and doing what we need to do. We have to wait, they may have to call their child, their sister, whomever, a family member to get the password to actually access their WiFi or wait for an e-mail link to reset their password. They don't know how to access their e-mail if they don't have their phone with them. Or have to use a copy-and-paste link, they're like, I can't, I'm not at home. I can't get there." - February 20th focus group

"I deal with participants really struggling even to use their own phones to be interactive with some of the technology or we use trainings that they had to utilize [on] their own devices such as their laptops or iPads. I think part of the challenge is they're not necessarily savvy with simple things like connecting to a WiFi network or understanding where to find specific things or downloading. But I would probably give it like a 70/30. Majority are able, but then the few as a trainer that don't become time consuming and it takes away [from] that instructional interaction." - March 19th focus group

"And what we have really learned is that there is no one size fits all and that you need to post it on social media, send it in an e-mail app, put it in a paper newsletter, put it on a website, do a hard mailing if it's something that important. I mean we have such a range of our providers between ages, abilities, learning styles, all of it. There is no one size fits all and that no matter what we put out there you need to put it out 97 ways…." – March 19th focus group

National research indicates a larger percentage of Americans now use smartphones (i.e., iPhone or Android devices) as their primary source of internet access at home. As of 2019, approximately one in five American adults owns a smartphone without having traditional home broadband service. In addition, this dependence on smartphones for online access is seen most often among adults who are younger (ages 18-29 and 30-49), non-White, and lower-income.[10] This trend will be further examined in the early childhood technology stakeholder survey. Focus group discussions highlighted the disparities between providers who may be more comfortable with using their smartphone than using desktop computers/laptops. This discrepancy can lead to problems when providers must upload documents for submission and verification by MSDE and/or partners.

"Some of the providers are so phone savvy. I mean, they could do their taxes on their phones, but to open the laptop and do anything there, they cannot do it." – February 20th focus group

"Providers now are trying to use their smartphone to create everything as opposed to using a desktop or a laptop and it poses problems for creating documents or uploading them." – February 20th focus group

"Almost every provider has a smartphone, so if we can link some of those technologies on how they can access it on their smartphone and training on that, I think we might get a little bit more from them that way." - March 11th focus group

Participants spoke about how online community colleges that have been offering distance learning for longer have several resources that could potentially be extended to help the ECE training community improve their technological skills and/or capacity.

"I teach at a couple of different community colleges and I've been doing online classes forever and a day. The community colleges have really, really good training on how to use different tools for online resources and so that may be something that we want to consider tapping into, grabbing one of those, so as to help our trainers who have limited skills." – March 19th focus group

"Howard is definitely doing a lot more sophisticated online stuff. And so their online distance learning office may be a good resource to tap to train [trainers]." - March 19th focus group

[10]Pew Research Center. Internet/Broadband Fact Sheet. https://www.pewresearch.org/internet/fact-sheet/internet-broadband/. Accessed April 22, 2020.

Across the focus groups, participants spoke about the types of technological platforms they used along with the ways that they used the technology to provide training, communicate with parents, or meet MSDE requirements. Please see **Table 2** for a more detailed table of the types of technology used by platform and type of ECE stakeholder.

> "You know, I know when we're talking about tech … we're talking about these big platforms doing virtual learning and we have trainers that still don't have basic Excel and PowerPoint skills and Publisher skills, which is very obvious sometimes when we see the PowerPoints that are put together. So, I think, as we're talking about that, there is such a big spectrum from basic computer skills to utilize Office products. And then we start talking about getting into these more complicated things like using cloud-based storage systems, using things like Zoom or Canvas or any of that, which if you are struggling with some of the basic Office and we say things like download, upload, input, output and we've already lost you. Then when we get to things like Zoom and GoTo Webinar, we are now speaking a completely foreign language to them." – March 19th focus group

Technological infrastructure needs

National research indicates that almost three-quarters of U.S. households have high-speed broadband service at home. However, not all demographic groups have the same level of access, with Black and Hispanic adults, older adults, rural residents, and those with lower levels of education and income less likely to have broadband service at home.[11]

Across the technology focus groups, Maryland's ECE stakeholders raised a number of pressing issues related to technological infrastructure that will need be addressed to improve overall technological capacity. For example, several participants spoke about bandwidth issues and unreliable access to WiFi in some communities, preventing some providers from connecting and staying connected to online platforms or having to deal with video and audio playback issues during online trainings. As a work-around, some ECE providers rely on other settings in their community to access the internet, including public libraries, resource centers, community colleges, and coffee shops. Unfortunately, these settings often have limited hours and capacity, and other constraints that make access challenging for providers.

Others discussed how a lack of access to updated technology software also poses problems of inefficiency for the ECE community:

> "I think in order for a person to able to train, like we're doing training that has webinars, we need the ability to have sound. So speakers or you know so we're not all fighting over projectors. When there's 15 of us, we might have trainings in the same county or the same area. We're sharing stuff like that. It's not practical for me to share with anyone because it takes me three hours to get up here and pick it up to turn around and go back home." –February 20th focus group
>
> "We have some rural areas still that don't even have the access to WiFi. They don't even get accessibility. How are they going to help those providers? There's some areas in Western Maryland that still do dial up." – March 9th focus group

Trainers also spoke about how Maryland's training system is "10 years behind" other states, citing the specific need for a statewide registry which would allow providers to access online training/workshops for continuing education via a central web-based portal. Both Pennsylvania and Tennessee's registries were mentioned as potential examples that could be used for Maryland.

[11]Pew Research Center. Internet/Broadband Fact Sheet. https://www.pewresearch.org/internet/fact-sheet/internet-broadband/. Accessed April 22, 2020.

"We often have providers who get excited, 'I just got a new laptop and I got it on sale.' There's not a single bit of useful software." - February 20th focus group

"I want to point out that not many people have the up-to-date Adobe product and I'm not sure even if the folks that have it bother checking to ensure that they do. I know from my experience it had taken five months to get the Adobe product." - February 11th focus group

"The documents themselves are outdated. We don't have a good system of providing up-to-date information to be accessible. We don't have a place where updates can be pulled in."- February 11th focus group

"I would like to be able to have a system that essentially all of us are able to act up and we can do everything electronic and virtual because I think it would really cut down on, you know, correspondence issues, losing things because everything is the same when it's electronically received or when it's sent. We don't have the infrastructure and that's one of the things that I know is something that's going to be coming down the pipeline for us, but it needs to be sooner as opposed to later. And that, and that's one of the biggest challenges for us because the training department holds up credentialing for the division and holds up licensing and holds up everything that happens with MD EXCELS." – March 19th focus group

Communications and training staff also discussed how, even if you have access to updated technological devices, there are still barriers to accessing WiFi in the work environment while out in the field. For example, individuals must have a state-issued computer and login in order to access WiFi, so if newly hired technical assistance providers are using their personal devices while visiting a regional office, they are not able to access state websites and other online ECE resources. Providing ECE programs and PD/trainers with WiFi mobile hotspots was suggested as a potential solution to this problem.

"But if you were to go in to a regional office and tried to get onto the WiFi, you can't because it's state WiFi. So that means that even staff that may be working in regional offices that are asked to bring their own laptop or their own tablet actually still can't get onto our website. They can't get onto Maryland EXCELS in that office because their personal tablet doesn't hook up to that. So we still have to wait for a state-issued computer." - February 20th focus group

"It's important to remember though that even though your office has WiFi, the WiFi is only accessible to those who have state user IDs and passwords, so you can't actually bring somebody in with their laptop to be able to login." - February 20th focus group

"But what I just thought about is hotspots. So the state could provide this. That's what I was thinking. That would be helpful. That's excellent. Maybe not even the money because then that presents issues when I have to go to the county and say, well they gave us money for hotspots and they're like, we don't care. And you're not getting any hotspots. So if they were to purchase them and give them to the consultants or even one or two. They could take them out with them. That would solve the connectivity issues." – March 11th focus group

To help address these issues, focus group participants suggested that the state may be able to enter into certain agreements with computer or software companies to obtain refurbished laptops, phones, software, or even expanded WiFi coverage. They also suggested the state offer more grant-funded statewide training and workshops through local organizations and community resources (public libraries, partner organizations, etc.).

Uneven access to technical support leads to "work-arounds"

Across the focus groups, participants cited the need for reliable on-site IT support when problems arise. While some support staff are available through Child Care Resource Centers or MOUs with a university IT department, these resources may be underutilized or not viewed as a reliable source of support (e.g., faculty and students would be considered priority in a university setting). Some participants mentioned technical support is available in multiple ways—online, by phone, and immediate/on-demand—through county-level resources, but it is unclear if all providers in the state have access to that same level of technical support.

> "So I do training at Allegheny College. There's a number I can call, and they can come in and help me…. We have an MOU with school but not necessarily just the IT person. Again, being through community college, we call the department, but because of using our laptops, they have everything locked down. We can't add anything. I can't update programs without getting them to come. And when we call, we might get a reply that day, but it may be two or three days later because we're not at the top of the list. Especially during class time and students and faculty have priority. So it can be awhile." – March 11th focus group

As a result, many providers resort to "work-around" strategies to help resolve their technical challenges. For example, ECE providers and Quality Assurance Specialists reported that many providers depend on family members to help solve their technical problems.

> "So, I think it's like a generational thing. So, the young kids and the younger generation, they can pick it up without even thinking about it. But even when we think about it, we still have a hard time going through the process." – provider from March 9th focus group
>
> "And a lot of people … go to their grandchildren and older adult children. And they do everything for them…. I try to do as much as I can, but if they mentioned or I ask them, do they have a relative that can help and they do, that eases my mind." – Quality Assurance Specialist from February 20th focus group

As another work-around, technical assistance providers such as EXCELS Quality Assurance Specialists may spend a significant portion of their work hours focused on helping providers with technical support. When asked at the February 20th focus group approximately what percentage of their time is spent on resolving technical support issues, one Quality Assurance Specialist answered, "Seventy-five. It's one of the main components of our jobs. It's more than the technical assistance sometimes."

> "… a lot of times you will come and set their [providers'] computer up and … I may have some familiarity with it and help get the basics right, but I'm not an IT person. And I think some of the terminology overlapped and they get confused between technical assistance and technical support." – February 20th focus group

Significant need for hands-on technology training at provider level

Focus group participants spoke about their need for both an on-demand support hotline and more in-person training opportunities specifically on the topic of technology.

When asked what types of assistance would be/have been most helpful, both trainers and providers talked about the value of using smaller group settings to allow for deeper engagement and individual support. Family child care providers also talked about a mentoring group they have formed for members of the family child care association that allows providers to receive peer support from other providers who

may have more technological expertise. One participant spoke about the importance of going beyond instructions to "physically help them" by logging into the computer, for example. MD EXCELS Quality Assurance Specialists also spoke about the value of the mentoring group:

"We need support that we can call, like a number or two, once they come out to train us and let us know what, tell us what they expect, what level of technology they expect us to know in order to access all this information or whatever they want to send us online. Then they should also have a support number or, you know, someone that we can call if we get into a jam and tell them what we did. And they can walk us through that, because many times we can also learn through mistakes." – March 9th focus group

"You know, we need more technology training. We need more support. We need like, a technical phone number or physical hotline that we can go through. Yeah. And if they can offer, you know, through a grant or through, um, MSDE, that they can go and train providers regardless of their capacity and location, that would be great." – March 9th focus group

"It doesn't even have to be mandatory. It's just that it's [technology] not being offered. All the classes that are being offered are all child care-related and it's for hours and hours. We need some technology classes." – March 9th focus group

Trainers also spoke about the value of developing a series of how-to videos or an online resource library that could help provide the fundamentals on technology or solve common technical issues:

"…and they have formed a cohort and they all are now coming to all of my trainings … and about three of them have moved from a level one to a level three just from watching this one lady do this. I mean, just to know that it's doable, that peer support is awesome because it takes it off of me to actually tell them what it is when she's showing them how to actually do it and in that way it is phenomenal. She lets them know this is possible for you as a family child care provider as opposed to being in a center with extra assistance." – February 20th focus group

Both providers and trainers spoke about the value of giving incentives for participation in trainings:

"… there's more of a turnout when there's like an incentive, like give a gift for them. You know, if we're going to say, 'Hey, we're going to do a work group, come out and get help,' you're probably not going to show up. Or when you say, 'Hey, we're going to do a work group on your Microsoft Office, you're going to get a free license for Microsoft Office,' it's going to be packed within 10 minutes, you know, and it's probably the people who actually need it who are going to show up for it. So it's kind of, what's that draw to get them into something." – February 20th focus group

Providers also stressed that these trainings should be more inclusive and offered more widely, regardless of provider size or geographic location.

"They need to … make it more inclusive. I think a lot of times they target higher-tier groups. And so, like, they were talking about ELA. I know nothing about it because when they, the training came out for it, it was people in the Title I school districts, and … unfortunately, I don't know which way to go, but I'm not in that district so I didn't qualify to get the free training. They got all of it, and it happens so many times. There are so many different trainings that they get. I don't get only because I live in a different area, you know? And that doesn't mean I have the means to go and find them. Sometimes I just need to know what they are, you know? So I think when they have these types of trainings, they need to be more inclusive."

"So maybe they try to get in touch with associations and ask them to maybe ask the providers to send out an e-mail of what they think they know, want to know, and maybe do county trainings with the association…. We have a monthly training … I think, definitely, we need the knowledge."

"I think we need more hands-on. It's just kind of a mental block for some of us and we're used to hands-on technology more than work technologies, like Facebook, e-mail, text."

"I also think face-to-face is like, if it's not something immediately concerning us, it might be some problem that you [are] having. And so we kind of learn from each other's needs and so if she has a need and then they're training her, then if we didn't know that, we didn't even think of asking, we would get trained in that area. That's the face-to-face group." – providers from March 9th focus group

Given the time commitment being asked of providers to attend in-person trainings, MSDE should also ensure that training and workshop sessions are offered in ways that will generate participation from the provider community by aligning the format, scheduling, and topics with their preferences and needs.

"I think they should offer to do a free training, two hours through professional development for providers and that way you will have more providers there who are attending the trainings and from each county. And that way they can reach each county, reach more providers and also hear from people who, maybe, are less able to use the computer. Like you know, many of us." - March 9th focus group

"I think maybe if they can improve the funding for the R&Rs so they can work more on more days. On the weekend and accommodate our needs. I think in a month it's two or three weekdays from 6:30 to 8:30 and then Saturday morning. Honestly for our providers … because at the end of the day, we're already exhausted … that they would benefit more because we have long hours. Sometimes we don't even finish until 6, you know, maybe 6:30 or even 10 at night." – March 9th focus group

"I think we need our own version of like YouTube where we have a series of videos based on the issue we're having. We can start there. So it doesn't become some massive burden on the state because I fully recognize there's not enough of them as it is and adding one more thing, it's just not going to work. I think it would be great if as trainers and as providers, there was a few libraries of videos that you could go to, it's kind of like common issues, right? Like my speakers won't hook up. My projector won't hook up. Apparently, I no longer have internet…" – March 19th focus group

Family child care providers also spoke about the need for MSDE to provide training that adequately prepares them before modernizing early childhood platforms and services. Participants reported feeling "blindsided" by new changes in technology and underscored the importance of training and communications from MSDE on the purpose and scope of the changes prior to implementation.

"We don't want to be blindsided and say, we're gonna do this and we're not ready before they [DEC] come and make all these plans for modernization and stuff. They have to make sure the providers are ready … that we know how to do things and we're aware of the different plans' purpose…." - March 9th focus group

"… whatever new is coming out, whatever new technology they're going to use, they [teachers] get to go train on them or they have people come in and train them. So they need to treat us the same way. We are going to provide that training for us and then offer a refresher." - March 9th focus group

"I think some of it is telling us what these things are, right? Why we should use them? Because just getting an e-mail that says this thing is online. Okay, what does that mean to me, you know?" – March 9th focus group

Improving state-level technological capacity at MSDE

In addition to providing support and building capacity among ECE providers across the state, the focus groups revealed the underlying need to improve the technological capacity and infrastructure used by MSDE staff who regularly communicate with providers. These include online instructors/trainers and specialists around quality assurance, licensing, mental health, and communications. As part of this study, the research team held a focus group specifically with MSDE staff to better understand the barriers encountered when delivering online PD/training and maintaining online media for the ECE community, and also to document the expertise needed to build long-term technology capacity in the state. A few of the key themes that emerged are described below.

Focus group participants highlighted the need to improve internal technological capacity and staff retention at MSDE. There is a general lack of dedicated staff with IT expertise at MSDE to handle the orientation of new employees, updating of web-based resources, and resolving issues related to technology. While there are some MSDE staff who regularly get called to resolve these issues because they "just happen to have certain skills," there does not seem to be specific staff hired for web development, graphic design, or IT functions. The focus group conversations revealed concerns about this over-reliance on a few key staff and the impacts on long-term stability, along with the issue of having to keep up with constantly evolving technology when it is not their primary skill set or part of their job description. Others spoke about the need to avoid "single points of failure" by relying on contractual employees as technology staff, which is not seen as sustainable. This lack of in-house expertise also leads to the perception that MSDE is not meeting the same level of functionality that they expect the larger ECE community to meet.

Participants spoke about how some prior MSDE efforts to change technology systems were not successful, largely due to miscommunication between contractors/technical experts and those who would be actual end users for the systems. For example, online instructors were not sufficiently consulted as part of the state's decision to select Blackboard as Maryland's online learning management system. The Blackboard platform was described in focus groups as "antiquated, not user friendly, and having poor functionality." Similarly, when MD EXCELS launched a new system in 2018, it was seen as an "absolute disaster" because MSDE put trust in a contractor that did not understand the goals of the EXCELS system. These reflections indicate a need for MSDE to allow for sufficient dialogue and consultation between technical experts and those working in the ECE field in order to be able to develop a system that is ultimately functional.

Participants also spoke about the need for a better process to create accessible documents and more efficiently post materials online. Right now, communications specialists are taking on a range of tasks that they have learned "on the job," but are not necessarily trained in. Before materials are posted on government websites, they must meet Section 508 compliance requirements of the Rehabilitation Act. Since only a few communications staff at MSDE have the knowledge and capacity to create accessible documents, there is often a bottleneck created when items are ready to be posted online. Focus group participants mentioned the need for a full-time position devoted to creating Section 508 accessible documents, since staff "can't do it based upon a two-hour training; that can't be their only resource in order to be successful."

"… when we do have an opportunity to build systems and to have a coordinated system … those who are making those decisions, I feel they need to come back to those people directly doing the work on what they need. Because, I think, far too often, decisions are made and then we get something and we're like, well this doesn't even work for us or it's missing this or it's missing that. So, remembering that you need to come back down to us and ask us those questions and the people in the field." – February 11th focus group

"… it's that need of knowing that the experts are actually around the table who understand quality in regard to early childhood, but also understand what quality in early childhood looks like in a tech world and in a system that is functional." – February 11th focus group

In addition, participants discussed the ways that MSDE could benefit from the modernization of its data and training system. For example, some processes, such as the review of training proposals that are conducted manually with hard copies, could be moved online to improve efficiency and time management. Currently, the state's ECE data systems are not automatically integrated, so when an ECE program closes, the notification must be sent manually through several e-mails to notify all components of the ECE system (e.g., EXCELS, licensing, Maryland Family Network), resulting in an inefficient process that is susceptible to human error.

"There's a variety of different systems that don't talk to each other appropriately. And so you either have to go to four different places or you have to keep your fingers crossed that the one place you went was actually where you should go for the information…. And our system is still not able to run a report that's going to show how many providers did this or took this class or did this, so that we would actually have that. So, it's always feeling like we're trying to recreate a wheel that got flat a really long time ago." – February 11th focus group

Key considerations for Maryland's early childhood technology plan

A number of key considerations emerged out of the technology focus groups that, along with the findings from the stakeholder survey, will inform MSDE's early childhood technology plan:

- build internal capacity and modernization at MSDE;
- increase technological capacity in rural communities (e.g., mobile kiosks that allow providers to access the internet to submit information to MSDE);
- offer reliable sources of technology supports to providers (e.g., how-to video series, support hotline/on-demand support); and
- provide additional opportunities for hands-on technology training and workshop sessions for ECE providers.

APPENDIX D

Maryland Early Childhood Technology Survey

INTRODUCTION

ID: 28

The Maryland State Department of Education (MSDE) is seeking to better understand the use of technology among early care and education (ECE) stakeholders through this survey. The survey should only take 10-15 minutes to complete.

The current COVID-19 crisis has further emphasized the need for Maryland to assess and increase the technological capacity of those working across the early childhood system. As a stakeholder in Maryland's ECE community, your participation in this survey is greatly appreciated. Participation is voluntary and all information provided will be kept confidential and only be viewed by the research team. Findings from the survey will only be reported in the aggregate and will be used to inform MSDE's ECE technology plan, which will provide recommendations to increase the technological capacity of Maryland's early childhood stakeholders.

For the purposes of this survey, the term "technology" is defined broadly to include technological platforms used to communicate with ECE providers and/or families of young children—e-newsletters, webinars, blogs, text messaging, social media (e.g., Facebook, Twitter, Instagram)—as well as technology used to support professional development and learning in the classroom—mobile applications or "apps," online training modules, and other web-based resources. Please note that questions will refer to your experiences using technology both before and after COVID-19 social distancing measures were implemented.

Please complete this survey no later than June 19, 2020. Thank you in advance for your time.

ROLE IN THE ECE COMMUNITY

Page exit logic: Skip / Disqualify Logic IF: #1 Question "Which of the following descriptions best fits your role within Maryland's ECE community?" is one of the following answers ("Parent/caregiver for a young child") THEN: Jump to page 13 - THANK YOU!

Page exit logic: Skip / Disqualify Logic IF: #1 Question "Which of the following descriptions best fits your role within Maryland's ECE community?" is one of the following answers ("Coach, consultant, or other technical assistance/professional development provider", "Child Care Resource Center staff", "Institute of higher education or post-secondary educator") THEN: Jump to page 9 - CURRENT USE OF TECHNOLOGY

Page exit logic: Skip / Disqualify Logic IF: #1 Question "Which of the following descriptions best fits your role within Maryland's ECE community?" is one of the following answers ("Program administrator, director, or owner", "Teacher, assistant teacher, or support staff") THEN: Jump to page 3 - CURRENT USE OF TECHNOLOGY

Logic: Show/hide trigger exists.

ID: 2

1) **Which of the following descriptions best fits your role within Maryland's ECE community?***

( ) Program administrator, director, or owner

( ) Teacher, assistant teacher, or support staff

( ) Coach, consultant, or other technical assistance/professional development provider

( ) Child Care Resource Center staff

( ) Institute of higher education or post-secondary educator

( ) Parent/caregiver for a young child

Logic: Hidden unless: #1 Question "Which of the following descriptions best fits your role within Maryland's ECE community?" is one of the following answers ("Program administrator, director, or owner", "Teacher, assistant teacher, or support staff")

ID: 4

2) **Which of the following best describes the ECE setting in which you work?***

( ) Head Start/Early Head Start program

( ) School-based PreK program

( ) Center-based child care setting

( ) Family child care/home-based setting

( ) Judy Center

( ) Other: Please specify: _____

Logic: Hidden unless: #1 Question "Which of the following descriptions best fits your role within Maryland's ECE community?" is one of the following answers ("Coach, consultant, or other technical assistance/professional development provider", "Child Care Resource Center staff")

ID: 196

3) **Which of the following topic areas best describes the focus of your coaching, training, or technical assistance?**

( ) Program quality improvement (e.g., Maryland EXCELS Quality Assurance Specialists)

( ) Early childhood mental health (e.g., ECMH or Pyramid Model Coaching)

( ) Other: Please specify: _____

ID: 5

4) **Which of the following categories best describes the geographic area in which you work (pre-COVID-19)?***

( ) Rural

( ) Urban

( ) Suburban

Validation: %s format expected using custom RegEx pattern

ID: 6

5) **Please provide the five digit ZIP code of the location where you work (pre-COVID-19).***

_____

ID: 194

6) Please indicate your year of birth.*

( ) 1940
( ) 1941
( ) 1942
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( ) 1997
( ) 1998
( ) 1999
( ) 2000
( ) 2001
( ) 2002

CURRENT USE OF TECHNOLOGY

We are interested in understanding the ways in which you currently use technology, your comfort level with using technology, and your preferred methods of communication.

ID: 9

7) Before COVID-19, which devices did you use to access the internet?

Please check all that apply.

[ ] Desktop computer
[ ] Laptop computer
[ ] Tablet (e.g., iPad, Surface, Galaxy)
[ ] Smartphone (e.g., iPhone, Android)
[ ] Other: Please describe: _____

ID: 12

8) Before COVID-19, where did you primarily access the internet?

Please check all that apply.

[ ] Home
[ ] Work
[ ] Community/recreation center
[ ] Public library
[ ] Neighborhood coffee shop or restaurant
[ ] Other: Please describe: _____

ID: 155

9) Before COVID-19, how often did you use technology in your work as an ECE provider to:

	Daily	Weekly	Monthly	Rarely	Never
Participate in online professional development/training activities	( )	( )	( )	( )	( )
Access or engage in Maryland EXCELS or any program quality improvement initiatives offered by the state (e.g., accreditation, marylandfamiliesengage.org)	( )	( )	( )	( )	( )
Communicate and/or collaborate with other ECE educators	( )	( )	( )	( )	( )
Communicate with families and/or the community	( )	( )	( )	( )	( )
Manage the business (e.g., financial software, vendor billing)	( )	( )	( )	( )	( )
Provide classroom instruction	( )	( )	( )	( )	( )
Conduct internet research for your work	( )	( )	( )	( )	( )

ID: 206

10) After COVID-19 social distancing measures are lifted, how often do you anticipate using technology in your work as an ECE provider to:

	Daily	Weekly	Monthly	Rarely	Never
Participate in online professional development/training activities	( )	( )	( )	( )	( )
Access or engage in Maryland EXCELS or any program quality improvement initiatives offered by the state (e.g., accreditation, marylandfamiliesengage.org)	( )	( )	( )	( )	( )
Communicate and/or collaborate with other ECE educators	( )	( )	( )	( )	( )
Communicate with families and/or the community	( )	( )	( )	( )	( )
Manage the business (e.g., financial software, vendor billing)	( )	( )	( )	( )	( )
Provide classroom instruction	( )	( )	( )	( )	( )
Conduct internet research for your work	( )	( )	( )	( )	( )

Validation: Min = 1 Max = 5

ID: 148

11) In your work as an ECE provider, how would you rate your comfort level with using the following types of technology or technological platforms:

Internet 1 _____[__]_____5

Mobile applications 1 _____[__]_____5

Social media 1 _____[__]_____5

Blog posts 1 _____[__]_____5

Webinars 1 _____[__]_____5

Online training modules 1 _____[__]_____5

E-mail/E-newsletters 1 _____[__]_____5

Text messages 1 _____[__]_____5

ID: 145

12) What are your preferred methods of communication for ECE updates and other information from MSDE?

Please check all that apply.

[ ] Webinars

[ ] Blog posts

[ ] E-mail/e-newsletter

[ ] Text messages

[ ] Social media (Facebook, Twitter, Instagram)

[ ] Meetings/conferences

[ ] Other: Please specify: _____

PERCEIVED IMPACT OF TECHNOLOGY USE

We are interested in learning more about the ECE community's perceptions on the use of technology in your work, including its impact on classroom instruction, collaboration, professional development, and barriers to using technology.

ID: 29

13) To what degree would you agree with the following statements?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Technology is essential to being kept up-to-date on evidence-based research practices that inform my classroom instruction.	( )	( )	( )	( )	( )
Technology is a good tool for collaboration with other ECE teachers/providers.	( )	( )	( )	( )	( )
Technology enhances my professional development.	( )	( )	( )	( )	( )
When new technologies are introduced to ECE providers, there is adequate training and support available.	( )	( )	( )	( )	( )
If technological issues arise, I often have to leave my program to access technology outside of the work environment (e.g., public library, coffee shop).	( )	( )	( )	( )	( )
I have used technology to provide virtual learning during the COVID-19 crisis.	( )	( )	( )	( )	( )
I expect my program's use of technology to increase significantly after the COVID-19 crisis.	( )	( )	( )	( )	( )

ID: 36

14) In your experience as an ECE provider, what do you consider to be the biggest barrier to using technology?

_____

_____

_____

_____

TECHNICAL SUPPORT NEEDS

We are interested in understanding whether you can access support when technological issues arise in your work and if you have sufficient staff capacity and infrastructure to support the effective use of technology in your ECE program.

Logic: Show/hide trigger exists.

ID: 38

15) **Before COVID-19, when I had an issue with technology (e.g., assistance with using software, getting online, troubleshooting computer issues), a knowledgeable person was available to help me resolve the issue.**

( ) Always

( ) Sometimes

( ) Never

Logic: Hidden unless: #15 Question "Before COVID-19, when I had an issue with technology (e.g., assistance with using software, getting online, troubleshooting computer issues), a knowledgeable person was available to help me resolve the issue." is one of the following answers ("Always", "Sometimes")

ID: 199

16) **If technological issues were encountered before the COVID-19 crisis, which of the following sources of formal and informal support did you typically use to resolve the issue?**

( ) Dedicated Information Technology (IT) staff on-site

( ) Child Care Resource Center staff

( ) Maryland EXCELS Quality Assurance Specialists

( ) Family member (e.g., spouse, older children, grandchildren)

( ) Other: Please specify: _____

Validation: Min = 1 Max = 10

ID: 215

17) **In terms of technology, to what degree did you feel supported by MSDE during the current COVID-19 crisis?**

1 _____[__]_____ 10

ID: 39

18) **To what degree do you feel your ECE program offers the following supports for the effective use of technology in the classroom?**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Reliability and speed of internet access are sufficient (e.g., connections to the internet, online databases, and other resources).	( )	( )	( )	( )	( )
Access to technical support (e.g., individuals that can help to troubleshoot hardware or software problems or maintain systems).	( )	( )	( )	( )	( )

ID: 150

19) Which technical support solutions would you find most helpful in your future work?

Please stack the solutions below in order of most helpful (top) to least helpful (bottom).

_____Formal in-person trainings on technology use

_____One-on-one training sessions by appointment with technology staff

_____On-demand assistance (e.g., technical support hotline)

_____Access provided to online trainings on technology use

_____Other: Please specify:_____

ID: 152

20) Regarding the use of technology, which areas of need are your top priority?

Please stack the areas below in order of highest priority (top) to lowest priority (bottom).

_____More time to learn to use applications/resources

_____More time to integrate technology into my curriculum

_____More training on how to use technology

_____More technical support to keep computers and applications running (e.g., software updates)

_____More access to technology tools to integrate into classroom instruction

_____Faster access/connectivity to the internet

_____More opportunities to collaborate with colleagues on potential uses of technology for my ECE work

_____Support aligning the integration of technology with the implementation of MD Early Learning Standards

_____More streamlining of the types of technology used across ECE programs

_____Support using technology to collect and report ECE program data to MSDE

RECOMMENDATIONS TO IMPROVE TECHNOLOGICAL CAPACITY

We are interested in hearing your ideas for steps the state can take to increase the technological capacity of Maryland's ECE provider community, including the types of information that would be most beneficial to you.

ID: 146

21) What state-level policy or system enhancements should be implemented to increase the technological capacity of ECE providers?

Please check all that apply.

[ ] Additional hardware resources for technology (e.g., laptops, mobile data hotspots)

[ ] Updated ECE knowledge and competencies regarding technology

[ ] Additional technical assistance/training specifically on the use of technology in ECE

[ ] Improvements to access/technology infrastructure (e.g., faster connectivity)

[ ] Other: Please specify: _____

ID: 151

22) What information would be most helpful to you if additional technology training/support was provided?

Please stack the information below in order of most helpful (top) to least helpful (bottom).

_____Use of technology to participate in professional development activities

_____Identification and evaluation of technology resources/websites that I can use to inform classroom instruction

_____The use of technology to collect and analyze student assessment data

_____Teaching strategies that incorporate technology (e.g., project-based or cooperative learning)

_____Information regarding online security and safety

_____The use of technology for differentiating instruction for all students, including those with special learning needs

_____Use of technology to increase efficiencies around running an ECE program (e.g., business practices)

_____Ways to use technology to communicate and collaborate with families about ECE programs and student learning

_____Ways to use technology to communicate and collaborate with other educators

ID: 66

23) If there was one thing that the state could do to build the technological capacity of you and other ECE providers, what would it be?

_____

_____

_____

_____

USE OF TECHNOLOGY IN COMMUNICATING WITH PARENTS AND FAMILIES

We are interested in learning about the ways your program uses technology to communicate with parents and families.

ID: 189

24) Before COVID-19, which of the following technology resources were used by your program to communicate with your parents and families?

[ ] E-mail/listserv

[ ] Program website

[ ] Social media (e.g., Facebook, Twitter, Instagram)

[ ] Text messages (e.g., Bright by Text)

[ ] Mobile applications (e.g., Tadpoles, Class Dojo, Brightwheel)

[ ] Online child assessments (e.g., TS Gold)

[ ] Other: Please specify: _____

ID: 68

25) To what degree do you agree with the following statements?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Technology is used to communicate with families about ECE programs/events and student learning.	( )	( )	( )	( )	( )
Technology is used to communicate and collaborate with the community about ECE programs/events.	( )	( )	( )	( )	( )
I would like to learn more about ways to use technological systems to communicate with families and the community.	( )	( )	( )	( )	( )
In response to the COVID-19 crisis, my program's use of technology to communicate with children and families has increased significantly.	( )	( )	( )	( )	( )

ID: 72

26) If there was one thing that could be improved regarding the technology used to communicate with parents and families, what would it be?

_____

THANK YOU!

ID: 144

Thank you for taking our survey. Your response is very important to us.

CURRENT USE OF TECHNOLOGY

We are interested in understanding the ways in which you currently use technology, your comfort level with using technology, and your preferred methods of communication.

ID: 73

27) Before COVID-19, what devices did you use to access the internet?

Please check all that apply.

[ ] Desktop computer

[ ] Laptop computer

[ ] Tablet (e.g., iPad, Surface, Galaxy)

[ ] Smartphone (e.g., iPhone, Android)

[ ] Other: Please describe: _____

ID: 74

28) Before COVID-19, where did you primarily access the internet?

Please check all that apply.

[ ] Home

[ ] Work

[ ] Community/recreation center

[ ] Public library

[ ] Neighborhood coffee shop or restaurant

[ ] Other: Please describe: _____

ID: 177

29) Before COVID-19, how often did you use technology in your work as a professional development (PD)/training provider to:

	Daily	Weekly	Monthly	Rarely	Never
Deliver online professional development/training activities	( )	( )	( )	( )	( )
Help providers to access or engage in Maryland EXCELS or other program quality improvement initiatives offered by the state (e.g., marylandfamiliesengage.org)	( )	( )	( )	( )	( )
Help providers communicate and/or collaborate with other ECE educators	( )	( )	( )	( )	( )
Communicate with families or the community about ECE programs/resources	( )	( )	( )	( )	( )

ID: 217

30) After COVID-19 social distancing measures are lifted, how often do you anticipate using technology in your work as a professional development (PD)/training provider to:

	Daily	Weekly	Monthly	Rarely	Never
Deliver online professional development/training activities	( )	( )	( )	( )	( )
Help providers to access or engage in Maryland EXCELS or other program quality improvement initiatives offered by the state (e.g., marylandfamiliesengage.org)	( )	( )	( )	( )	( )
Help providers communicate and/or collaborate with other ECE educators	( )	( )	( )	( )	( )
Communicate with families or the community about ECE programs/resources	( )	( )	( )	( )	( )

Validation: Min = 1 Max = 5

ID: 90

31) In your work as a PD/training provider, how would you rate your comfort level with using the following types of technology:

Internet	1	[__]	5
Mobile applications	1	[__]	5
Social media	1	[__]	5
Blog posts	1	[__]	5
Webinars	1	[__]	5
Online training modules	1	[__]	5
E-mail/E-newsletters	1	[__]	5
Text messages	1	[__]	5

ID: 147

32) What are your preferred methods of communication for ECE updates and other information from MSDE?

Please check all that apply.

[ ] Webinars
[ ] Blog posts
[ ] E-mail/E-newsletter
[ ] Text messages (e.g., Bright by Text, GovDelivery)
[ ] Social media (Facebook, Twitter, Instagram)
[ ] Meetings/conferences
[ ] Other: Please specify: _____

PERCEIVED IMPACT OF TECHNOLOGY USE

We are interested in learning more about the PD/training community's perceptions on the use of technology in their work, including its impact on PD/training, collaboration, delivery of PD, and barriers to using technology.

ID: 97

33) To what degree do you agree with the following statements?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Technology is essential to being kept up-to-date on evidence-based research practices that inform my PD/training curriculum.	( )	( )	( )	( )	( )
Technology is a good tool for collaboration with other PD providers/trainers.	( )	( )	( )	( )	( )
Technology enhances the delivery of PD/training to providers.	( )	( )	( )	( )	( )
When new technologies are introduced to PD providers/trainers, there is adequate training and support available.	( )	( )	( )	( )	( )
If technological issues arise, I often have to leave to access technology outside of the work environment (e.g., public library, coffee shop).	( )	( )	( )	( )	( )
I have used technology to provide virtual learning to providers during the COVID-19 crisis.	( )	( )	( )	( )	( )
I expect my use of technology for online instruction to increase significantly after the COVID-19 crisis.	( )	( )	( )	( )	( )

ID: 104

34) In your experience as a PD/training provider, what do you consider to be the biggest barrier to using technology in your work?

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_____

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ID: 105

35) In your experience working with ECE providers, what do you consider to be their biggest barriers to using technology in their work?

_____

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TECHNICAL SUPPORT NEEDS

We are interested in understanding whether you can access support when technology issues arise in your work, and if you have sufficient staff capacity and infrastructure to support the effective use of technology in the PD/training that you provide.

ID: 106

36) Before COVID-19, when I had an issue with technology (e.g., assistance with using software, getting online, troubleshooting computer issues), a knowledgeable person was available to help me resolve the issue.

( ) Always

( ) Sometimes

( ) Never

ID: 201

37) If technological issues were encountered before the COVID-19 crisis, which of the following sources of formal and informal support did you typically use to resolve the issue?

( ) Dedicated Information Technology (IT) staff on-site

( ) Child Care Resource Center staff

( ) MSDE Communications Specialist staff

( ) Other: Please specify:_____

ID: 107

38) To what degree do you feel MSDE offers a supportive environment for technology use in PD/training?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Reliability and speed of internet access are sufficient (e.g., connections to the internet, online databases, and other resources).	( )	( )	( )	( )	( )
PD/trainers in my organization have ready access to technical support (e.g., individuals who can help to troubleshoot hardware or software problems or maintain systems).	( )	( )	( )	( )	( )

ID: 185

39) Which technical support solutions would you find most helpful in your future work?

Please stack the solutions below in order of most helpful (top) to least helpful (bottom).

_____Formal in-person trainings on technology use

_____One-on-one training sessions by appointment with technology staff

_____On-demand assistance (e.g., technical support hotline)

_____Access provided to online trainings on technology use

_____Other: Please specify:_____

ID: 186

40) Regarding the use of technology, which areas of need are your top priority?

Please stack the areas below in order of highest priority (top) to lowest priority (bottom).

_____More time to learn to use applications/resources

_____More time to integrate technology into my PD/training curriculum

_____More training on how to use technology to deliver PD/training

_____More technical support to keep computers and applications running (e.g., software updates)

_____More access to technology tools to integrate into classroom instruction

_____Faster access/connectivity to the internet

_____More opportunities to collaborate with colleagues on potential uses of technology for my PD/training work

_____Support aligning the integration of technology with the implementation of MD Early Learning Standards

_____More streamlining of the types of technology used across ECE programs

_____Support using technology to collect and report ECE program data to MSDE

RECOMMENDATIONS TO IMPROVE TECHNOLOGICAL CAPACITY

We are interested in hearing your ideas for steps the state can take to increase the technological capacity of Maryland's ECE PD/training provider community, including the types of information that would be most beneficial to you.

ID: 125

41) What state-level policy or system enhancements should be implemented to increase the technological capacity of ECE providers?

Please check all that apply.

[ ] Additional hardware resources for technology (e.g., laptops, mobile data hotspots)

[ ] Updated ECE knowledge and competencies regarding technology

[ ] Additional technical assistance/training specifically on the use of technology in ECE PD/training

[ ] Improvements to access/technology infrastructure (e.g., faster connectivity)

[ ] Other: Please describe: _____

ID: 187

42) What types of information would be most helpful to you if additional training/support was provided to the ECE PD/training community?

Please stack the information below in order of most helpful (top) to least helpful (bottom).

_____Identification and evaluation of technology resources/websites that I can use to inform my PD/training

_____The use of technology to collect and analyze student assessment data

_____Teaching strategies that incorporate technology (e.g., project-based or cooperative learning)

_____Information regarding online security and safety

_____The use of technology for differentiating instruction for all students, including those with special learning needs

_____Use of technology to increase my professional productivity

_____Use of technology to participate in professional development activities

_____Ways to use technology to communicate and collaborate with families about ECE programs and resources

_____Ways to use technology to promote communication and collaboration among ECE educators

ID: 137

43) **If there was one thing that the state could do to improve the technological capacity of the PD/training community, what would it be?**

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_____

THANK YOU!

ID: 1

Thank you for taking our survey. Your response is very important to us.

APPENDIX E

Methods: Coding Open Answer Responses and Quantitative Data Analysis

Coding Open Answer Responses

Questions with an "other" write-in option were up-coded as some of the write-in responses fell within the domain of the provided response options. Questions 2, 3, 7, 8, 12, 16, 19, 21, 24, 27, 28, 32, 37, 39, and 41 had "other" write-in responses. All blank responses or non-answers were discarded from the respondent data. Question 2 write-in responses were separated into four additional categories of ECE work settings, including school-age/before- and after-school programs, faith-based/private preschool, center-based child care/PreK, and administration at school/LEA. Question 3 responses were up-coded as some write-in responses fell within the provided response options. The other write-in responses were separated into four additional categories of topic areas that describe the focus of the respondent's coaching, training, or technical assistance. These categories include general PD/best practices for ECE, licensing specialists, PreK–3 instruction/literacy, and general technical assistance/training. Question 7 was also up-coded due to some responses falling within the provided response options. The other write-in responses fell within the new category of smart technology. Question 8 write-in responses were broken down into three other categories of internet access locations, including multiple settings, relative, and school/school parking lot. Question 9 write-in responses were not included in the final count as they were blank or were not relevant to the question regarding the frequency of technology use as an ECE provider. Question 10 write-in responses were also not included in the final count as they were blank or not relevant to the topic of post-COVID technology use in ECE work. Question 12 write-in responses were up-coded into the existing response options. The remaining write-in responses were divided into three categories of preferred methods of communication for ECE updates and MSDE information, including phone calls, paper mail, and leadership communication.

Questions 14, 23, 26, 34, 35, and 43 are open-ended questions. All collected responses for these questions are write-in responses. After reviewing each response for each question, categories were created based on the most commonly occurring responses. All answers were then grouped accordingly to whichever category it fits best. Questions 19 and 39 had either blank responses or non-answers that were not relevant to the question.

Quantitative Data Analysis of Survey Responses

Survey responses were exported from SurveyGizmo into Excel for further data analysis. Data cleaning included the removal of parents (n = 123) from the sample as well as the removal of all responses that failed to continue after Question 6 (n = 422), which represented the end of demographic information questions and the beginning of the technology survey.

Re-coding of several questions was completed for analysis. A *PD & Training* group was created by combining the following Question 1 responses: Child Care Resource Center staff; Coach, consultant, or other technical assistance/professional development provider; Institute of higher education or post-secondary educator. Age groups were created from question 6, where participants were asked to identify their year of birth, allowing for an analysis of how age impacted responses. Year of birth was subtracted from the current year, 2020, to calculate age, and then responses were coded into the following age categories: (1) Under 30 years old, (2) 30-50 years old, and (3) Over 50 years old. Several questions allowed respondents to choose and then write in a personal 'other' option. These 'other' responses were analyzed and re-coded into thematic categories.

The survey used skip logic to guide respondents to specific questions depending on their response to Question 1, where they identified their role in the Maryland ECE community. This essentially created three separate surveys for (1) Parents, who immediately exited the survey, (2) Child Care Providers & Teachers, and (3) PD & Training Professionals. When the same questions were asked in both the PD & Training Professionals and the Child Care Providers & Teachers surveys, the responses were combined so an analysis of the entire survey population could be completed. For example, Question 7 and 27 each asks, "Before COVID-19, which devices did you use to access the internet?" Responses were combined, allowing for an analysis of the entire survey, by role within the Maryland ECE community, by age, and by geography.

As respondents were not required to answer every question in the survey or respond to every part of an individual question, the sample size was calculated for each question. A response was counted in the total as long as they responded to at least one part of the question. For example, Question 13 asks respondents to mark their level of agreement with seven statements. If a response marked at least one of the seven statements, their response was counted in the sample size. If all statements were left blank, their response was not counted in the sample size.