



IDC Education Study: Digital Education in Schools

June 2018

IDC's 2018 Survey of New Zealand Schools Indicates;

<p>Top 3 BYOD Impacts</p> <ol style="list-style-type: none"> 1. Self-directed learning is enhanced 2. Faster content updates and accessibility for students 3. Faster assessment of learning success 	<p>Digital Fluency leads to Equity</p> <p>76% say digital fluency will improve equity of access to digital education.</p>	<p>BYOD Policy</p> <p>48% have implemented a BYOD policy for students and a further 16% plan to develop one. The smaller the school the less likely they are to have a policy</p>	<p>The Most Common Information Sources</p> <p>When making digital decisions:</p> <ol style="list-style-type: none"> 1. Other schools and peers 2. IT service provider/vendors 3. Events and conferences 	<p>Security and Privacy</p> <p>59% of respondents worry about student security and 69% think they have it covered with current protocols and processes.</p>
<p>Top 3 BYOD Benefits</p> <p>Encourages:</p> <ol style="list-style-type: none"> 1. Learning outside classroom 2. Collaboration and interaction 3. Deeper and personalised learning 	<p>Personalised learning</p> <p>65% use or plan to implement Adaptive Learning Platforms (ALPs) and 87% use or plan to implement personalised learning</p>	<p>BYOD Implementation</p> <p>55% of schools have already implemented BYOD demonstrating a lag between deployment and developing a policy .</p>	<p>Distribution of ICT Budgets</p> <p>On average 48% of the ICT budget, of schools surveyed, is spent on hardware, 32% on IT services (including cloud) , 12% on software and 8% on networks and telecommunications</p>	<p>Use of cyber security tools</p> <p>60% of responding schools use cyber and data security tools and a further 29% are evaluating their security options.</p>
<p>Top 3 BYOD Challenges</p> <ol style="list-style-type: none"> 1. Widening equity gap, 2. Affordability, 3. Management of multiple device types 	<p>Learning Time</p> <p>it is predicted that 46% of learning time will involve laptops by 2022 (up from 16% in 2018) and 36% of learning time will be on tablets by 2022 (up from (9%)</p>	<p>BYOD by Device</p> <p>26% of laptops used in NZ schools are BYOD/CYOD, 34% tablet devices are BYOD/CYOD</p>	<p>Average Tech Spend</p> <p>On average 6.3% of a school's non-teaching budget is allocated to technology spending.</p>	<p>Digital Citizenship</p> <p>47% of schools surveyed stated that they have already deployed a digital technology citizenship education programme. and a further 46% plan to launch one.</p>
<p>Obstacles to Digital Integration</p> <ol style="list-style-type: none"> 1. Digital skills of teachers, 2. Cost/lack of funding, 3. Online resource development 	<p>87% use pool devices</p> <p>To meet the needs of students and families that cannot afford devices. However, only 6% can take the devices home. This has significant implications of creating an equity gap</p>	<p>BYOD Guidelines</p> <p>44% provide some BYOD guidelines for devices and 22% provide specific guidelines (Choose Your Own Device – from a list, CYOD) .</p>	<p>Chromebooks & iOS on Students' Devices</p> <p>51% of laptop devices used by students, in schools surveyed are Chromebooks and 62% of Tablets in schools are Apple devices (iOS)</p>	<p>Use of Education Applications on Devices</p> <p>87% of the schools surveyed said Google's G-Suite for Education is used on student devices and 24% use Microsoft Office 365 for Education</p>

*BYOD = Bring your own device

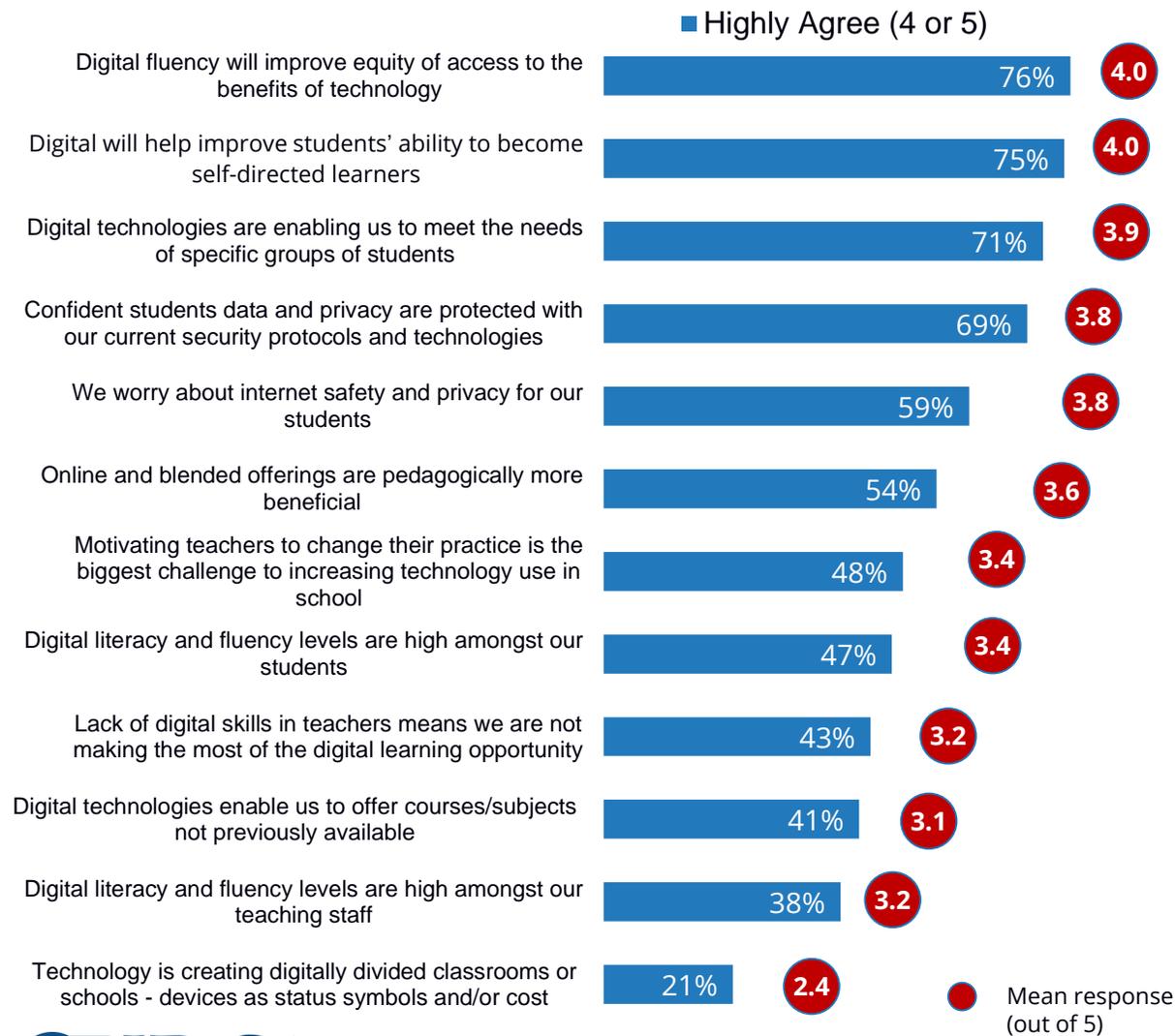
CYOD = Choose your own device which is a subset of BYOD

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Attitudes towards digital technology and education

Q: Please rate the degree to which you agree/disagree with the following statements about the use of digital technology in schools (1 = disagree completely and 5= agree completely).



Digital Fluency is the key to digital equity

Digital fluency is recognised as the key to increasing the equity of access to technology. As shown here, 47% highly agree that digital fluency is high amongst their students and 38% have the same opinion of their teachers. This indicated that there is still a gap that needs to be closed in many schools to reach the digital equity objective of schools. This is further emphasised by the response of a fifth of the respondents surveyed, who strongly agreed that technology is creating digitally divided classrooms, an opinion that was particularly strong in secondary and composite schools.

Digital is a major enabler of self directed learning

Self directed learning was a universal theme in the survey across region, school type and school size. The high level of agreement with this statement demonstrates that New Zealand schools have a very strong belief that students can take control of their learning environment, pace and direction. IDC's global research has demonstrated that in this environment the teacher's role will evolve to become a facilitator and collaborator. However, digital fluency of teachers will determine the capabilities and outcomes of this approach.

Digital is enabling schools to meet the needs of specific student groups

This is associated with digital equity, engagement and inclusion. While this statement does not define the groups of students, it can be inferred that it in part applies to students with special needs, disabilities, language barriers, cultural differences, digital experience and socioeconomic backgrounds.

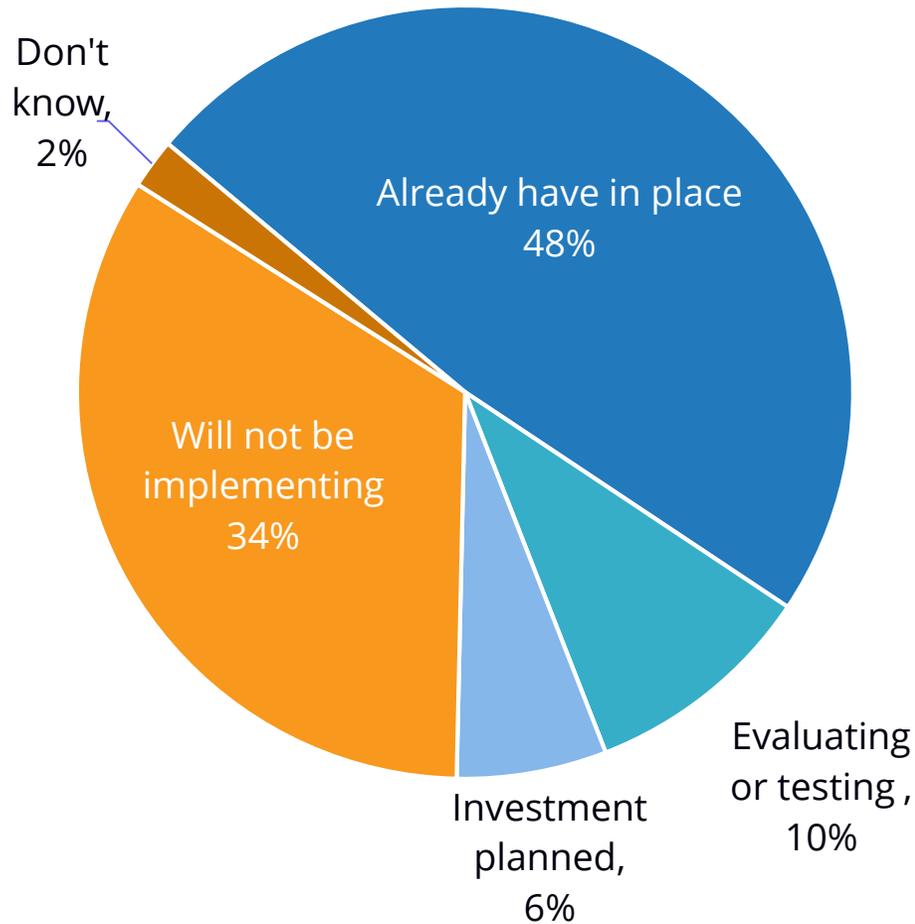
There are concerns about privacy and security but many schools are confident their protections are adequate

While 59% indicated high levels of concern over internet safety and privacy for students, over 69% said they were confident these concerns were being addressed through existing security protocols and technology.

Schools' with a BYOD policy for students



Q. To the best of your knowledge, which of these areas will your school be investing in or evaluating/testing in 2018? "Introducing a Bring Your Own Device policy for students."



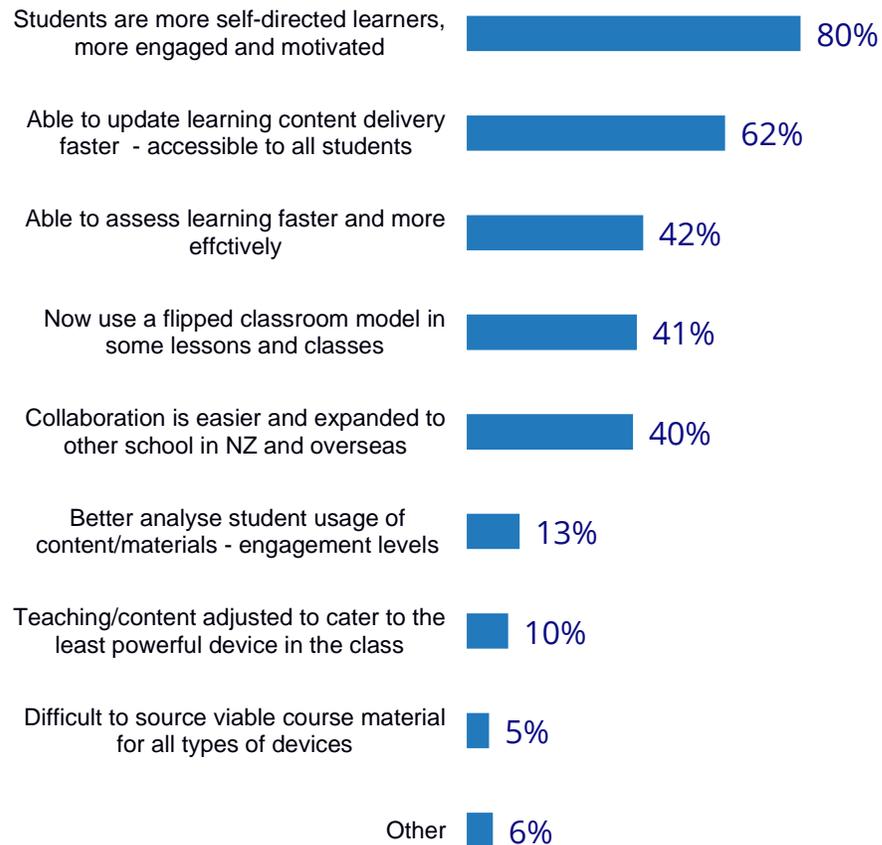
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- **BYOD Policies in Schools:** BYOD policies outline who purchases devices, who pays for the costs associated with these devices being on the network, school requirements for the use of applications and device types that will be approved by schools. A BYOD policy will differentiate between BYOD and CYOD and allow schools to determine, upfront, what will and will not be allowed on mobile platforms as well as defining security and requirements for devices, applications, students and employees.
- **BYOD Policy vs Implementation:** The number of schools with a BYOD policy in place is greater than the numbers indicated in the data about device makeup of schools. This can be attributed to the variety of BYOD devices used by different schools. In some schools BYOD will apply across multiple device types while in other schools only one form factor (laptops or tablets) will be covered by the policy.
- **School Type Trends:** In terms of an established BYOD policy, Intermediate and Secondary schools are the most advanced, with almost twice as many schools (75%) reporting that they have a policy in comparison to primary schools (38%) and composite schools (33%).
- **The smaller the school the less likely they are to have a BYOD policy.** In the survey there was a strong correlation between school size and whether or not a school has a BYOD policy. For example, 57% of schools with less than 200 students said they had no policy or implementation plans. In contrast, 78% of schools with over 1,000 students have a BYOD policy in place and only 4% have no plans for a policy.

BYOD's Impact, benefits and challenges on teaching



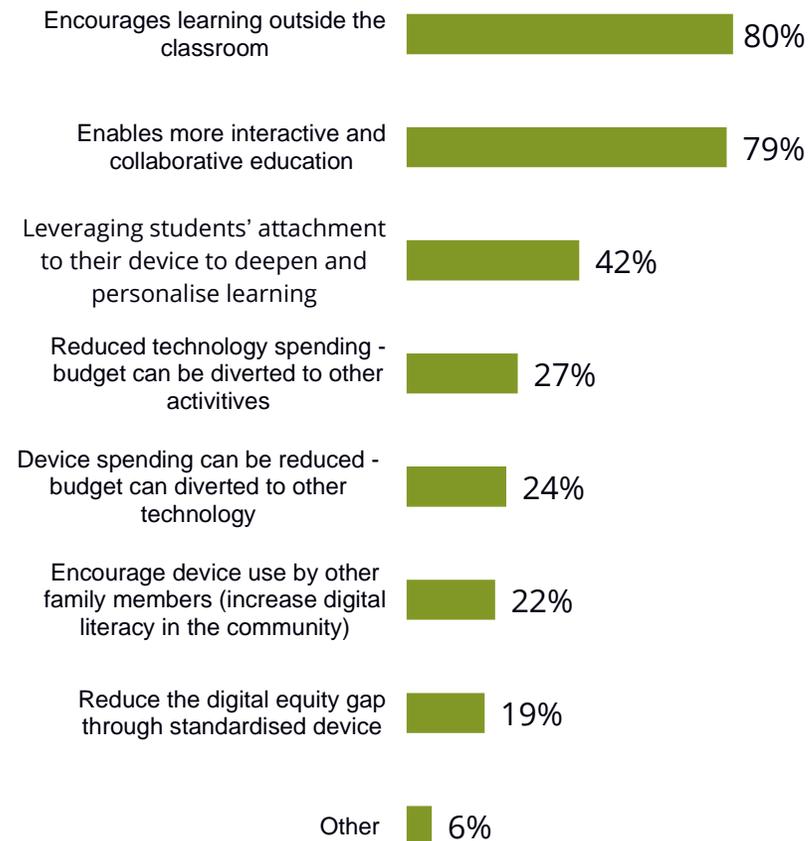
Impact on Teaching



Examples: the ability to allow children to become creators of content, become more critically minded and enrichment of teaching.

Q: How has BYOD affected teaching in your school classrooms?

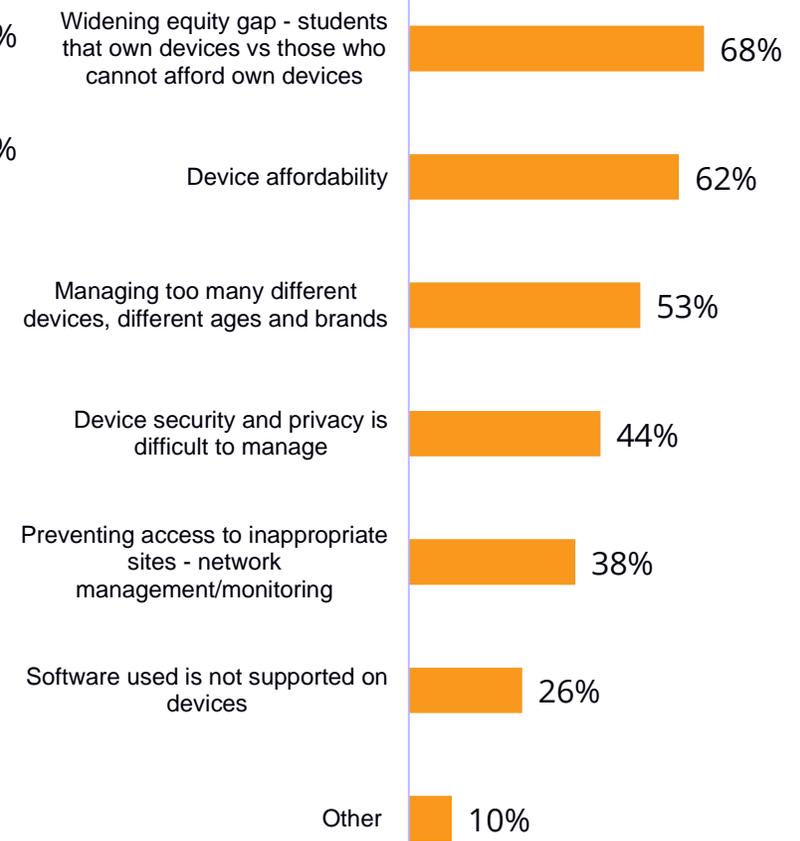
Benefits of BYOD/CYOD



Examples: holistic learning, learn to use devices as a problem solving tools, build resourcefulness and resilience, engage students who lack motivation.

Q: Which of these BYOD/CYOD advantages are important to you?

Challenges of BYOD/CYOD



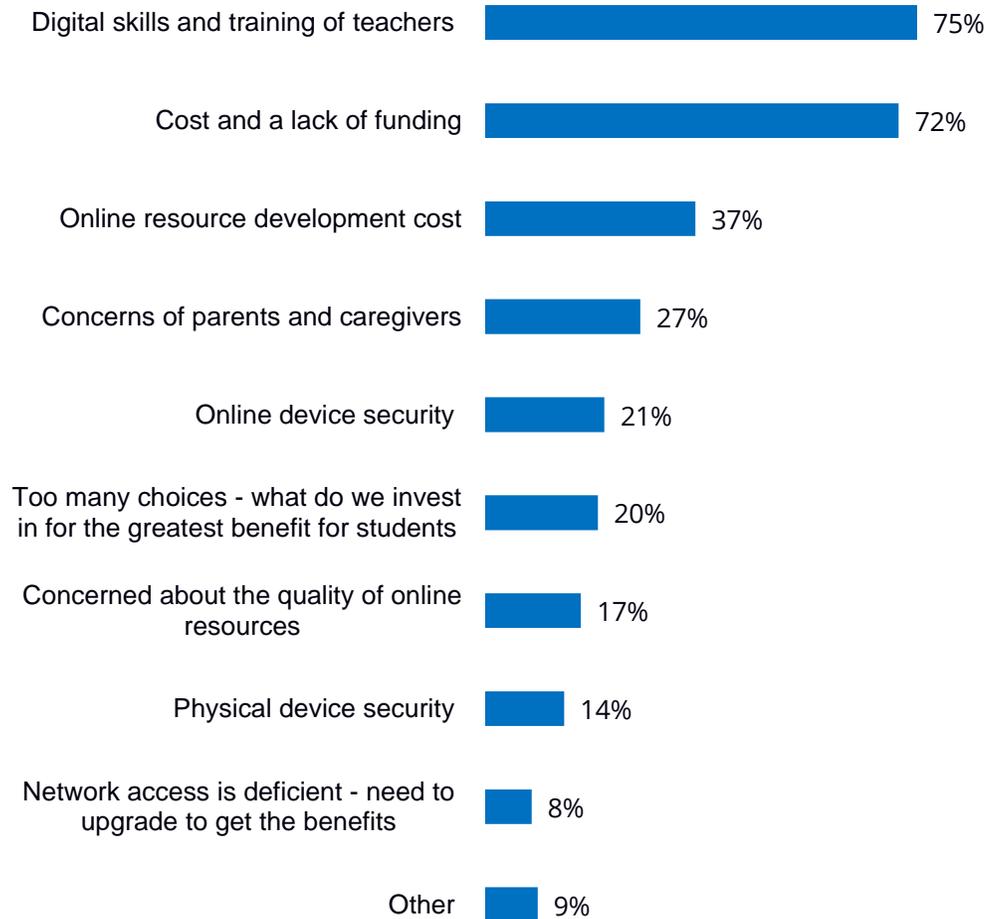
Examples: device charging keeping all devices up to date, inconsistent digital fluency, breakages/lost devices, keeping policy up to date.

Q: What are the key disadvantages of BYOD/CYOD?

Obstacles to integrating technology into teaching



Q. What do you see as the three biggest obstacles to integrating more technology into your teaching environment? (Aggregated responses)

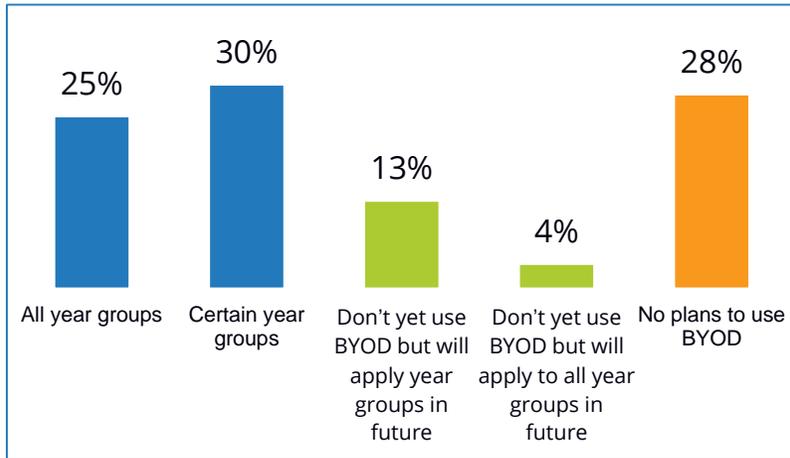


- **Funding and Digital Skills of Educators:** Reflecting responses in other areas of the survey, the digital skills of teachers and the need for training is considered the biggest obstacle, in 75% of the schools surveyed. With almost as many schools identifying cost and a lack of funding as a top three obstacle, it can be inferred that part of the difficulty lies in funding digital training which competes with investment in technology rather than the adjustment to pedagogy and teaching methodology associated with the change.
- **Digital skills training on the rise:** In another question in the survey 43% of schools stated that they have a digital skills program for teachers in place and a further 47% plan to launch one. IDC's global research has revealed that a teachers' digital skills and fluency has a significant impact on the speed at which digital technology and education models are adopted and integrated into their teaching environment. This research has also shown that a flexible approach to training will be required, that allows for the context of an individual school environment and its pedagogical objectives.
- **Online resource development costs:** For New Zealand schools transitioning to online education tools there is a substantial cost associated with the overwhelming volume of content, applications and the need to invest in frequent updates. Where a textbook may have been previously used for at least one year, new content online needs to be frequently updated to keep pace with device changes or the need to be customized and personalised to maximise the benefits to each school.
- **Concerns of families:** One of the core elements of digital equity in education is inclusion and involvement of the whānau on the students' learning journey. As New Zealand schools transition to digital education it IDC research in other countries has shown that active participation of parents and communities is essential for a successful digitally integrated education system. However, over a quarter still identified concerns of parents as a major obstacle to deploying technology in classrooms, particularly in primary schools.

BYOD/CYOD deployment, migration and device usage

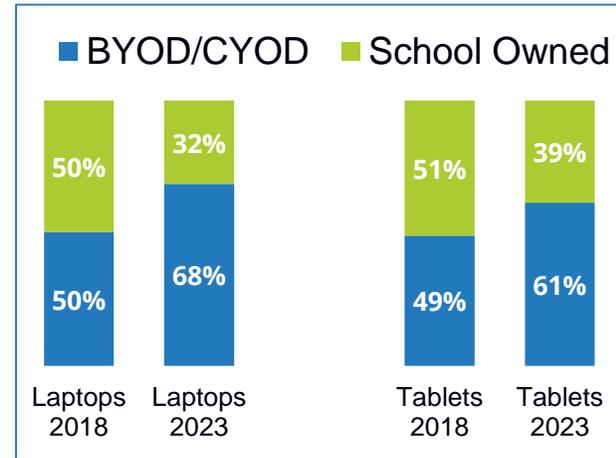


BYOD/CYOD Deployment



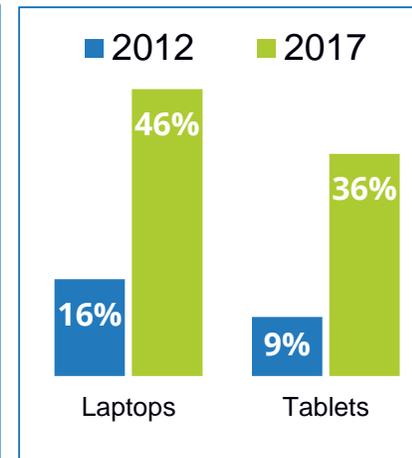
Q: Does BYOD/CYOD apply to all year groups or only certain year groups?

Migration to BYOD/CYOD



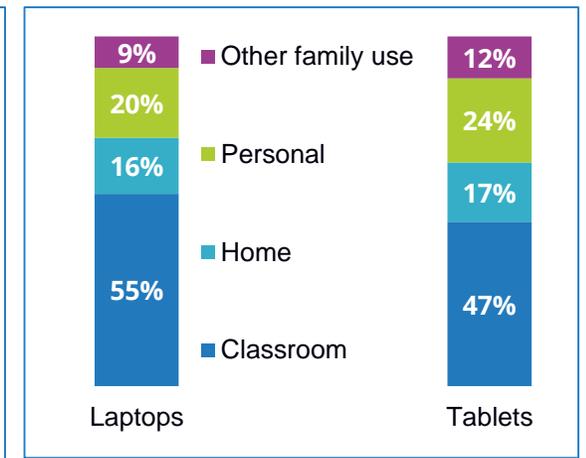
Q: Within the next 5 years how much do you think schools device ownership model will change

Learning Time on Devices



Q: What do you estimate is the % of learning time using devices? 2012 vs. 2017

Estimated Device Workloads



Q: How do you estimate the proportion of time devices are used for each of the following purposes?

- **55% of schools have already deployed BYOD** and 72% of schools that use or plan to use BYOD will apply the policy only to certain year cohorts or classes.
- **Migration of laptop devices to a BYOD/CYOD model outpacing tablets:** One driver is the growth of Chromebooks . These devices have a lower price entry, durability, battery life and flexible platform for content and app delivery, such as the widely used Google G-Suite for Education, used on student devices within 87% of the schools surveyed.
- **The big shift to learning on devices:** The schools surveyed indicated that learning time using devices has increased significantly in the last five years. While tablet use still lags laptop use, it has grown at a faster rate, driven by the growth of tablet use in small and primary schools.
- **High level of device usage outside of the classroom:** This is an indicator of how important devices are not only for classwork. Instead the devices play a major role in contributing to a holistic educational approach that is now required as part of the lifelong learning process. Previous IDC research also shows that there is a high likelihood that these devices in the home will also be used for conducting 'life tasks' online. A tenth of device usage can be apportioned to "other family use" and for many parents, schools provision of devices or a BYOD scheme provides access to devices to continue their own education, gaining digital literacy and easing fears of technology by demystifying the device.

Mobile device provision in New Zealand schools



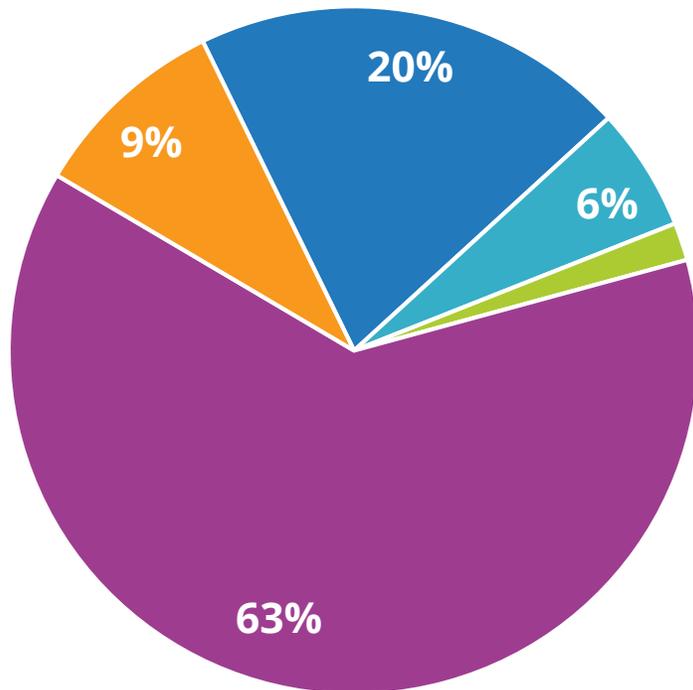
91% Use Laptops

78% Use Tablets

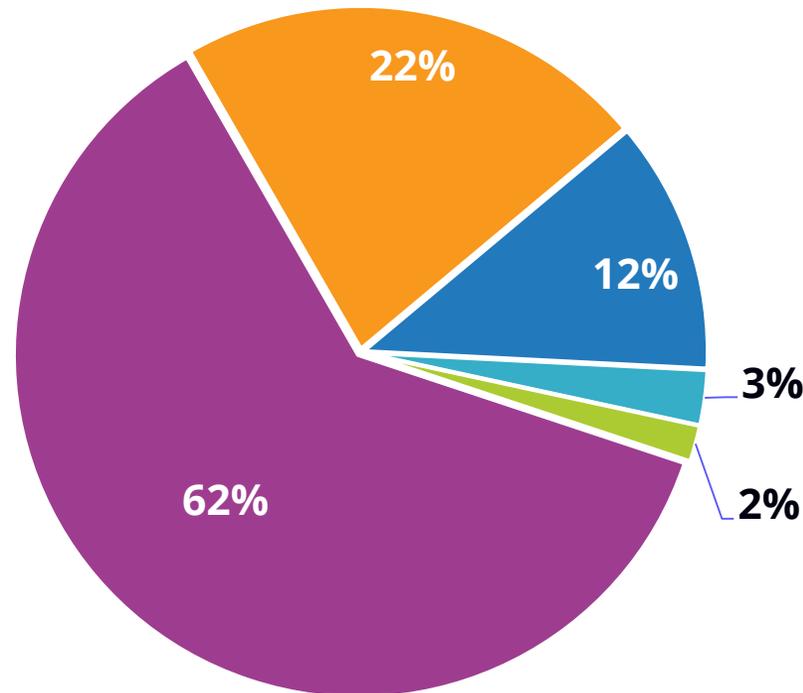
22% Use Smartphones

Q: Please estimate how the following mobile devices, that are used by students, are sourced by your school.

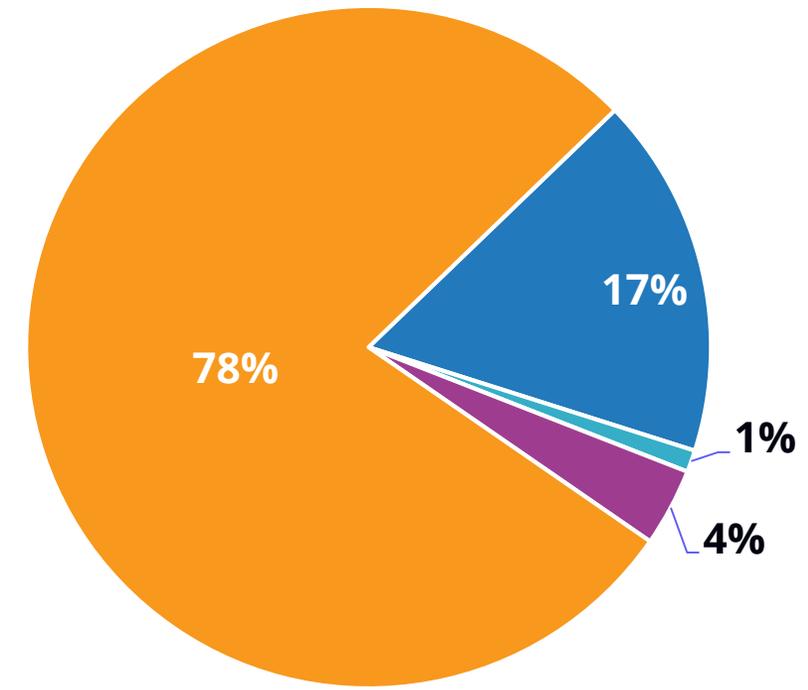
Laptops



Tablets



Smartphones



BYOD

CYOD

School provided - can take home

School provided - cannot take home

No provision

Mobile device provision in schools



School provided devices remain 'locked' within the classroom

Laptops are the most preferred device in schools situation, although it should be noted that some schools will accept either a tablet or a laptop as long as the device meets certain requirements such as screen size. While laptops and tablets are now common in most New Zealand schools, only 2% of the schools that provide devices for students, allow them to take the device outside the classroom. This negates some of the benefits of digital technology use in schools by;

- Not reducing digital inequity for those unable to afford technology and relying on school provided devices.
- Reduced learning environment. With a shift towards education beyond the traditional classroom environment, the inability to take a device outside of this environment will also provide a barrier to work seamlessly on research and assignments at home at the students' own pace.
- Family inclusion. It is not just children who benefit from school devices in homes - adults can also use the devices as an opportunity for continued learning and qualifications as they learn alongside their children.
- The success of a "flipped classroom" model depends on the ability of students to access devices outside of the classroom.

Smartphones are rare as a supported device in the classroom

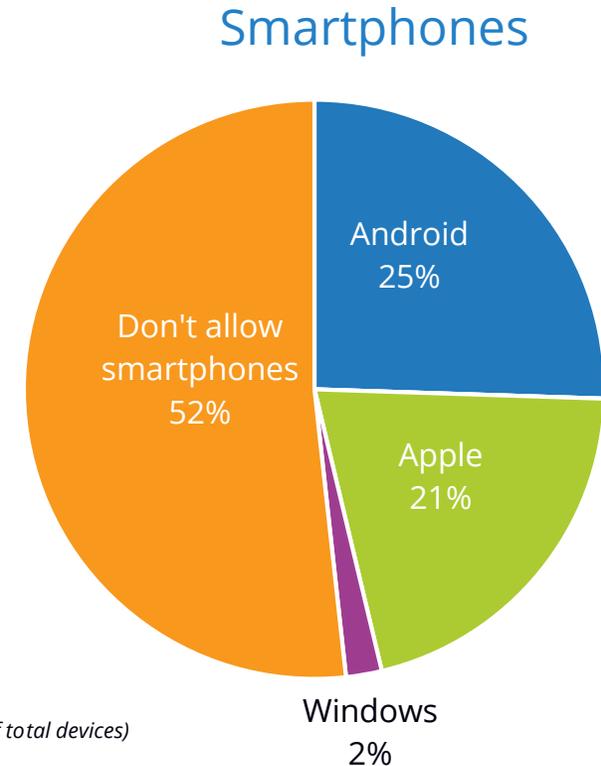
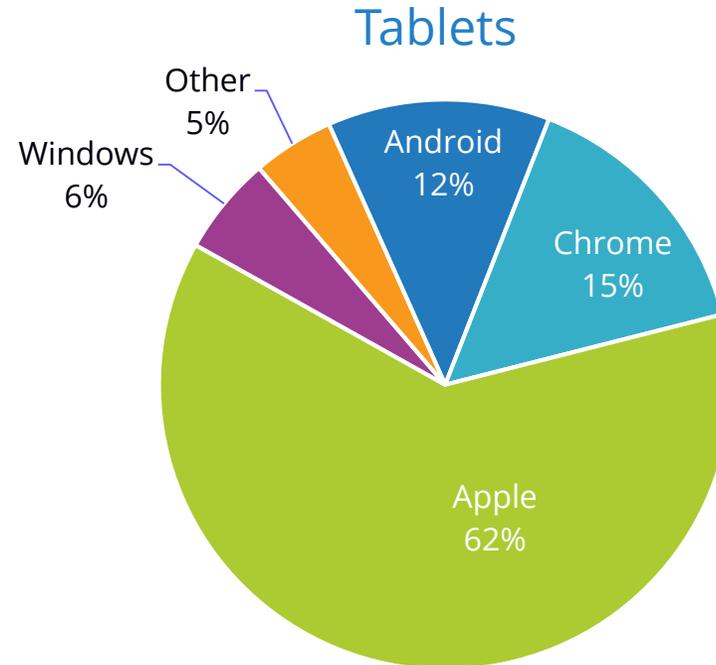
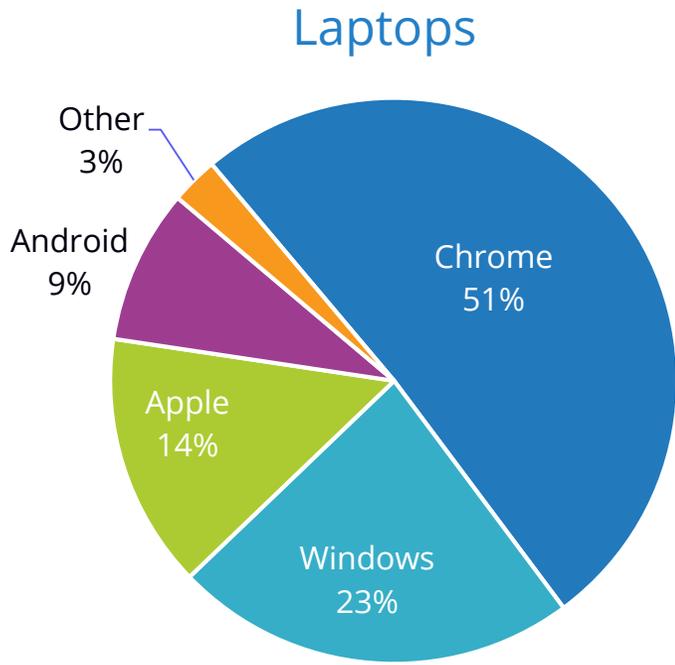
The data for smartphones masks significant differences between primary and secondary schools. In contrast, less than 10% of primary schools allow students to bring their own smartphones however half of Year 7 to 13 secondary schools allow smartphone BYOD and 61% of Year 9 to 13 secondary schools allow it. For many schools smartphones are still viewed as a distraction and a device they have little control over in terms of child safety because of mobile internet access rather than compulsory connection to school networks.

The Expected Rise of Choose your own Device (CYOD)

CYOD policies allow students to choose and buy their preferred device from a list of mobile devices officially sanctioned by the school. This provides schools with peace of mind, knowing that at the very least, the devices students will be using to access school networks and applications have been vetted. Provisioning can often be streamlined with the assistance of third-party services, alleviating the headaches associated with manually provisioning devices for students and their parents.

Students have never had more options when it comes to selecting a mobile device and CYOD programs are increasingly going to be viewed as an attractive balance between school needs and student wants. While CYOD only accounts for a relatively small segment of schools, devices in the market, such as retailers and distributor, have indicated to IDC that they expect CYOD in schools will grow faster as a preferred option, eventually overtaking BYOD as schools seek to standardise the device landscape. BYOD is more difficult for teachers to manage as there will be multiple operating systems each requiring additional knowledge of how to solve problems and how to manage the classroom collectively.

Distribution of device operating systems (OS)



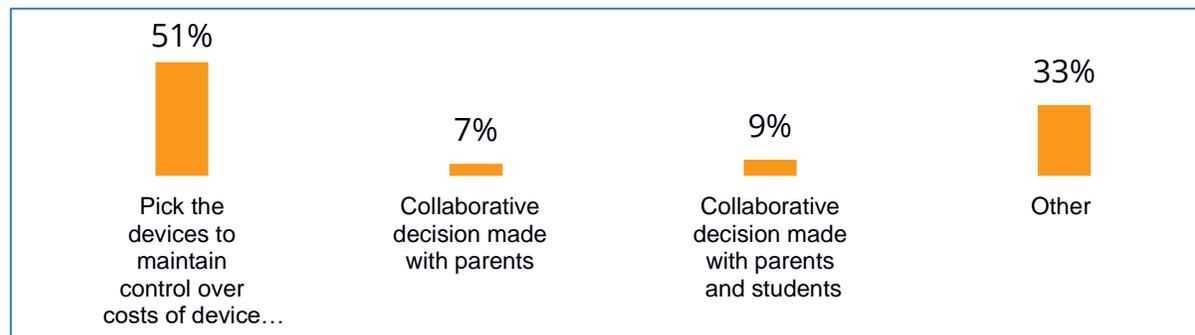
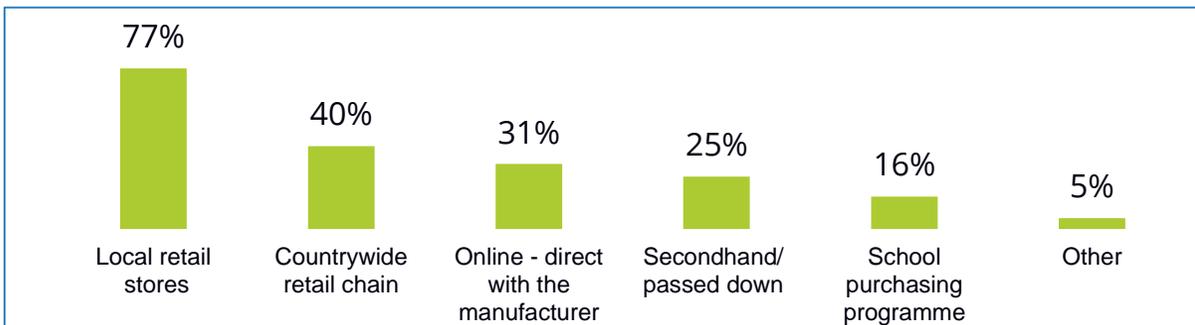
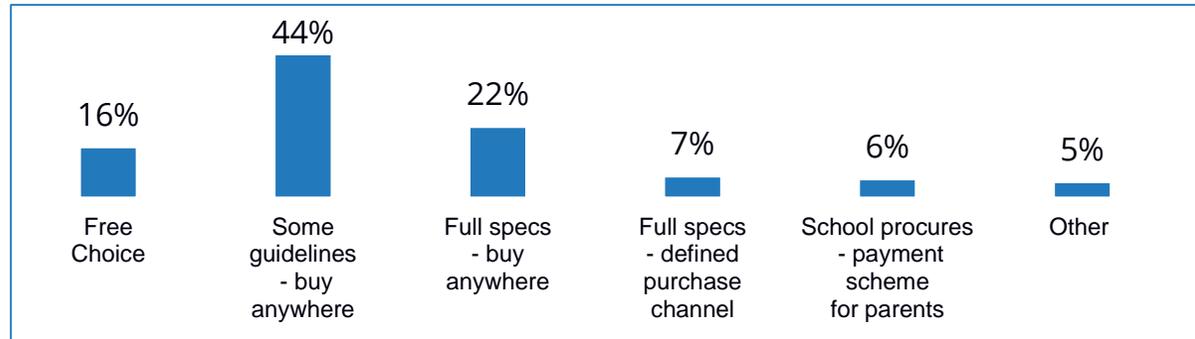
Q: What is the most commonly used operating system for the devices used/ to be used by the students? (please estimate % of total devices)

- Laptops: The Rise of Chrome:** Chromebooks are the preferred 'laptop' of choice. These devices are a lot cheaper than other laptop devices, they are fast, portable, easy-to-use, and have a long battery life, all essential for classwork. They are particularly attractive for schools aiming to implement a 1:1 device program. These are also considered more 'secure' than other portable devices, which may explain, in part, why there are relatively low levels of concern about device security in other responses in the survey. Chrome devices are popular for schools with less than 1,000+ students. In large schools only 14% of devices are Chrome, with the preferred devices having iOS (24%) or Windows (48%). BYOD sales of Chrome laptops is forecasted by IDC to double between 2017 and 2022, taking share from Windows and Apple devices (source: IDC Personal Computing Devices Tracker Q4 2017)
- Tablets: The Apple Stronghold:** Apple's iPad still holds a lion's share of the tablet device market in schools. However, while this is the current situation, IDC's research shows a shift is occurring within new shipments to the market from competitors (source: IDC Tablet Tracker Q4 2017).

BYOD/CYOD device funding models



Q: How are BYOD/CYOD models set-up and devices funded/purchased?

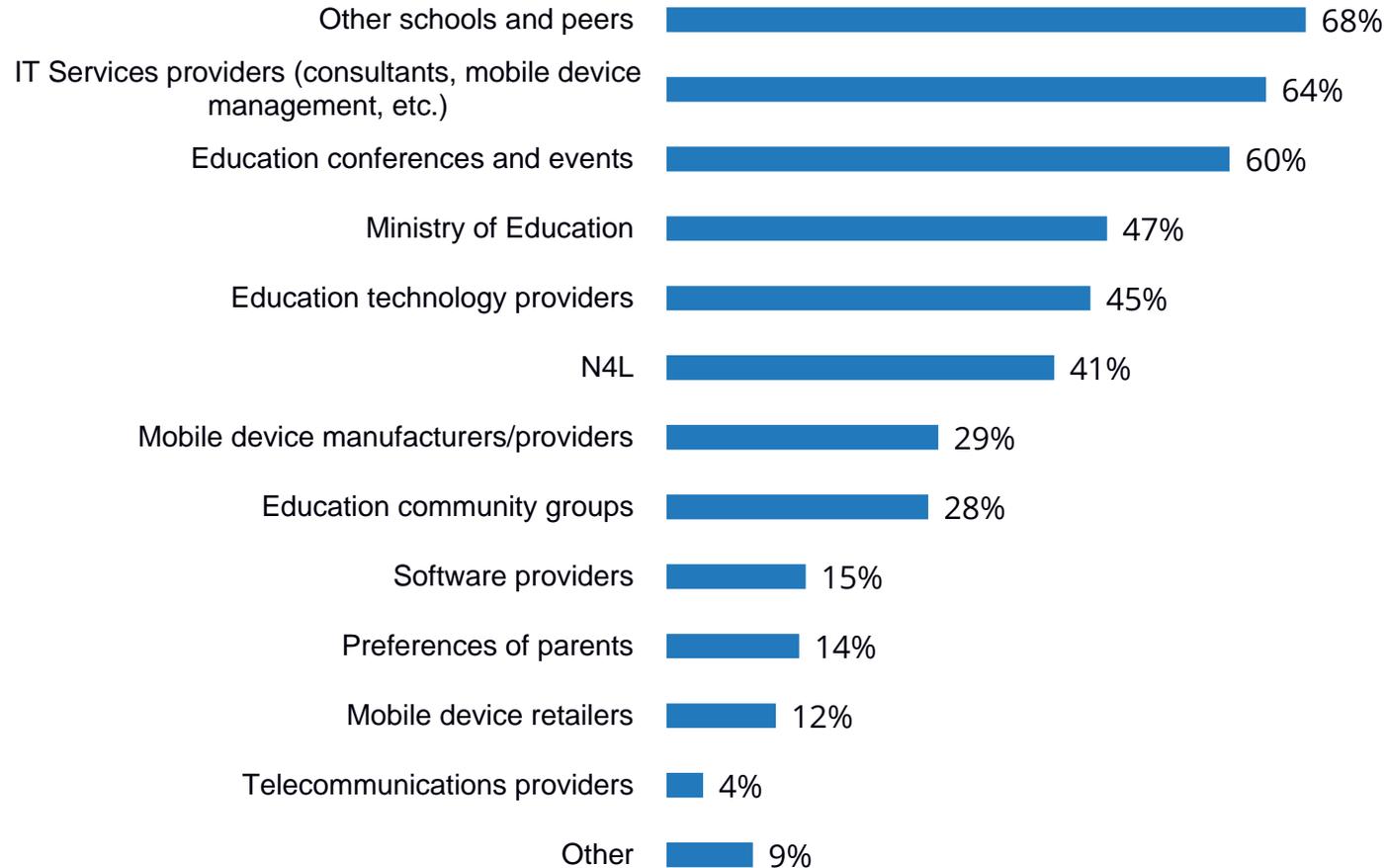


- There is high degree of freedom when it comes to students' ability to choose what device they use, with 60% having no or few restrictions on the device used in the classroom. However, there are quite different models depending on school size and type. The most prescriptive are primary schools with limited freedom of choice when it comes to the device options. In contrast, post intermediate schools have a more open approach in part to accommodate the needs of students as they progress in their education and one device does not fit all. The cost of devices is being addressed in smaller schools, with a fifth stating that they procure devices and then ask parents to cover the cost, through a payment schedule or one off payment.
- The main way parents buy BYOD/CYOD devices is through retail store. Local retailers are the preferred channel regardless of school type, region or school size. The use of second-hand devices is most common in secondary schools and contributing primary schools, suggesting that durability and longevity of a device is an important buying factor when determining the type and specifications of device to use, by parents and schools.
- Multiple stakeholder involvement in the decisions about devices emerges when students enter intermediate schools. It is only in primary and intermediate schools where the sole decision maker may be just the parents.

Information sources used to select devices

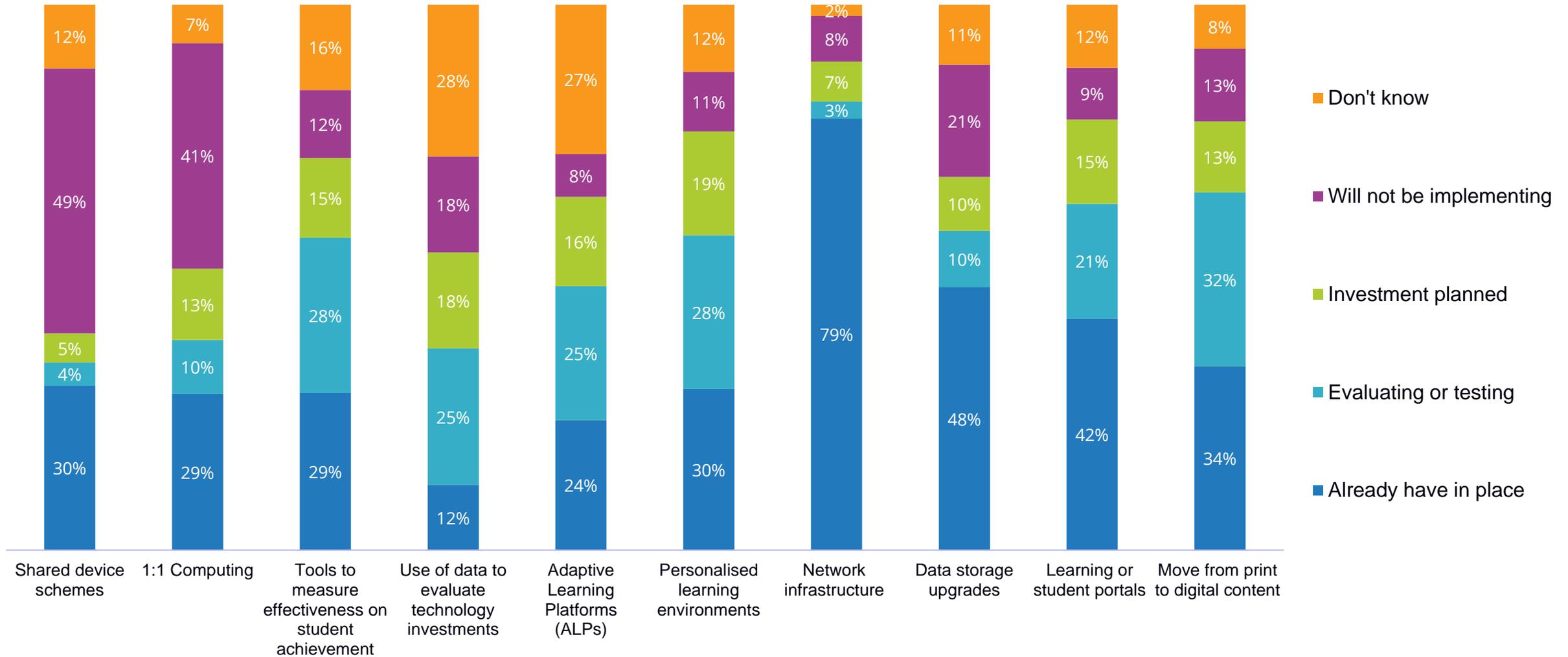


Q: What information sources do you use when deciding what devices to select or recommend for students and teachers (select all that apply)?



- On average 4 sources are consulted before making a decision. However, there are a number of other significant factors and sources that come into play including the use of;
 - Best practice research
 - Computer science experts
 - Connected Learning Advisory
 - Education forums
 - Manaiakalani Trust recommendations
 - Social media chatter
 - Own experience/knowledge and trials
 - Curriculum mandates
 - Learning objective
 - Review of previous policy and discussions
- Peers and other schools are critical sources for composite schools (93%). On the other hand, technology specialists, such as IT service providers, are the most preferred source of information for secondary schools..

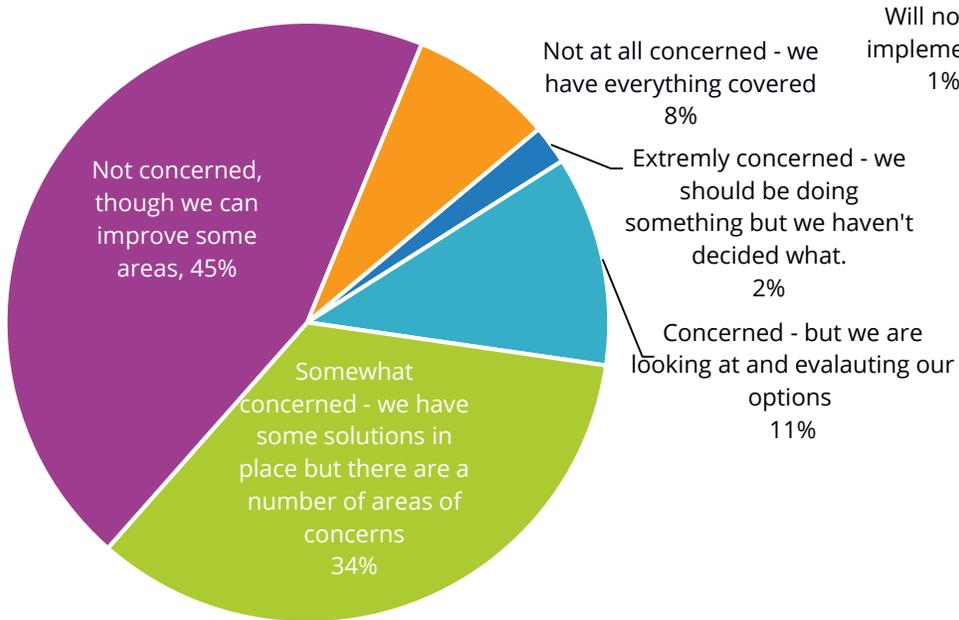
Digital education usage and implementation plans



Digital security, privacy and safety

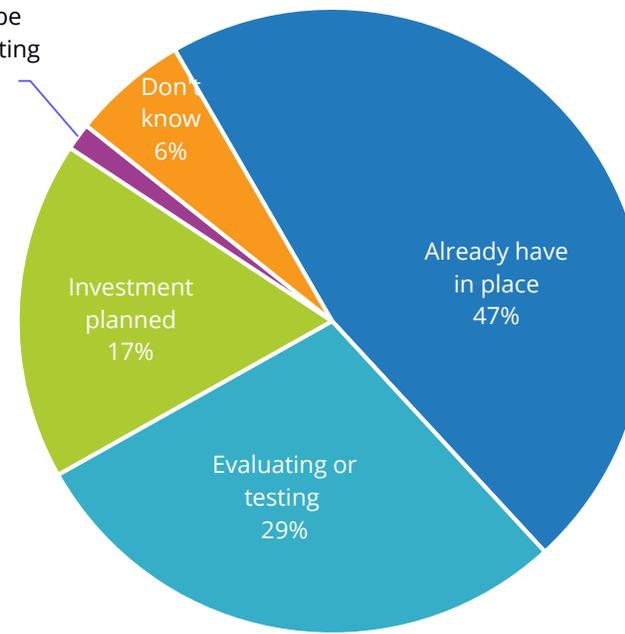


Concern about student safety on devices



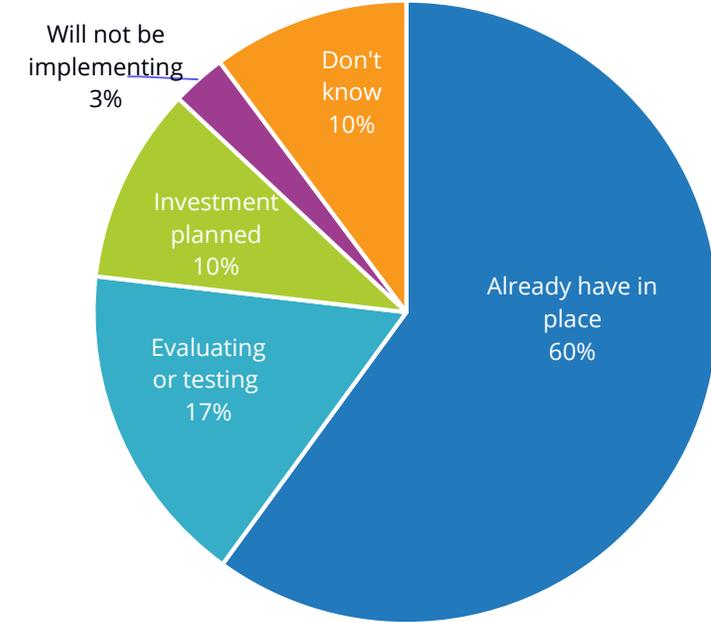
Q: How concerned are you about the security of devices used by children?

Digital Citizen Training



Q: To the best of your knowledge, which of these areas will your school be investing in or evaluating/testing in 2018? Digital Citizenship training

Cybersecurity Tools



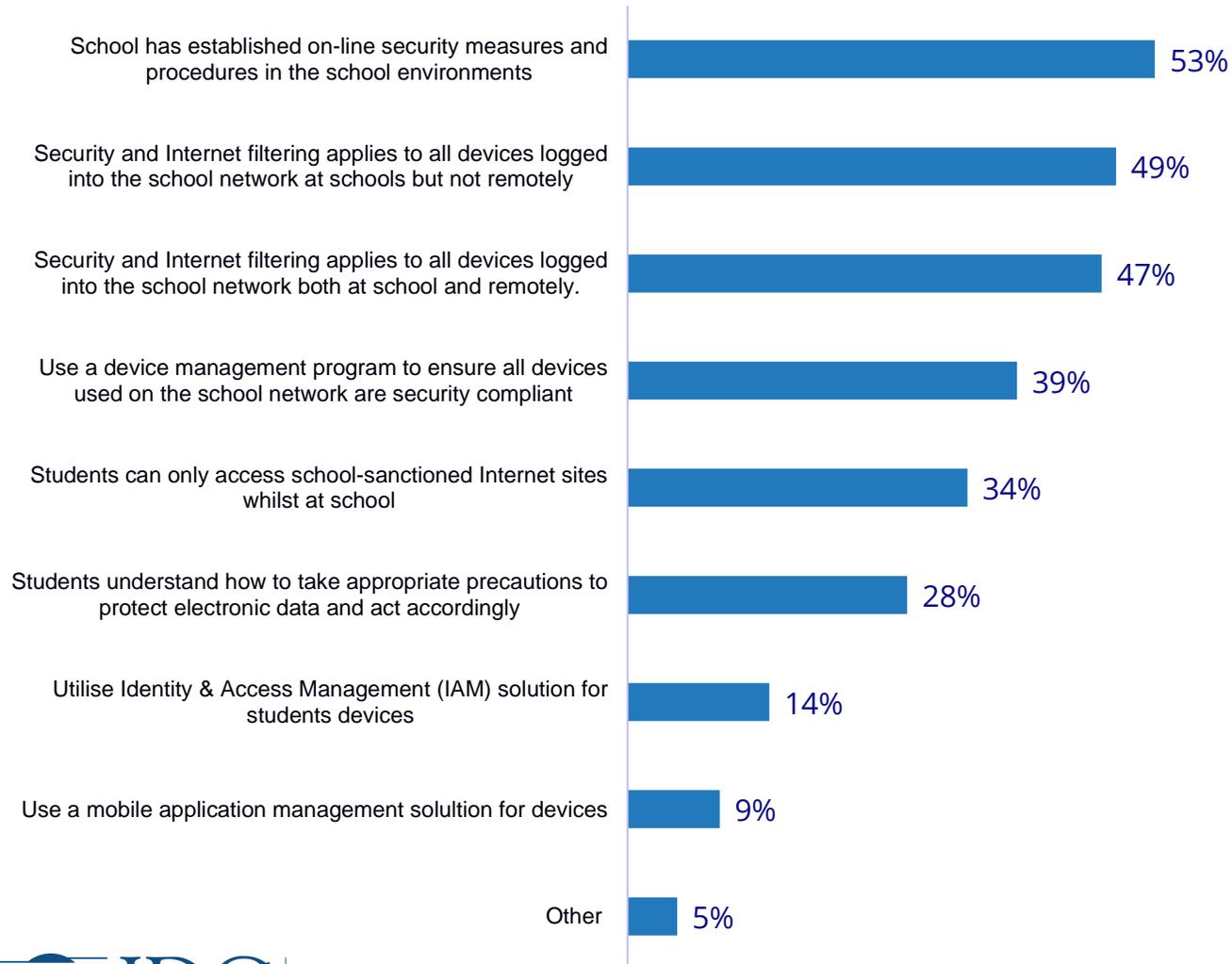
Q: To the best of your knowledge, which of these areas will your school be investing in or evaluating/testing in 2018? Cybersecurity and Data Security Tools

- As shown here only 13% stated that they had significant concerns about internet security at their schools, and over half are not concerned. Previous IDC research has found K12 schools do not allow student-installed applications as a preventive security measure. However, this is a tough policy to enforce, especially in the instance of BYOD when the device is the user's personal possession. Typically, K–12 institutions manage security from a server and network level while leaving the device security management to the users.
- These results suggest there may be overconfidence that the tools being invested in are adequate to address cyber security needs. This is occurring across the board, regardless of school type, region or size, even in areas where there are high levels of awareness about digital citizenship and security deployment.
- 93% of schools surveyed stated that they have already deployed or have plans to implement a digital technology citizenship education program. This was the highest deployment area across all the areas in the survey.

Security infrastructure for devices at school



Q: How is the infrastructure set up to keep students safe when on devices at school?

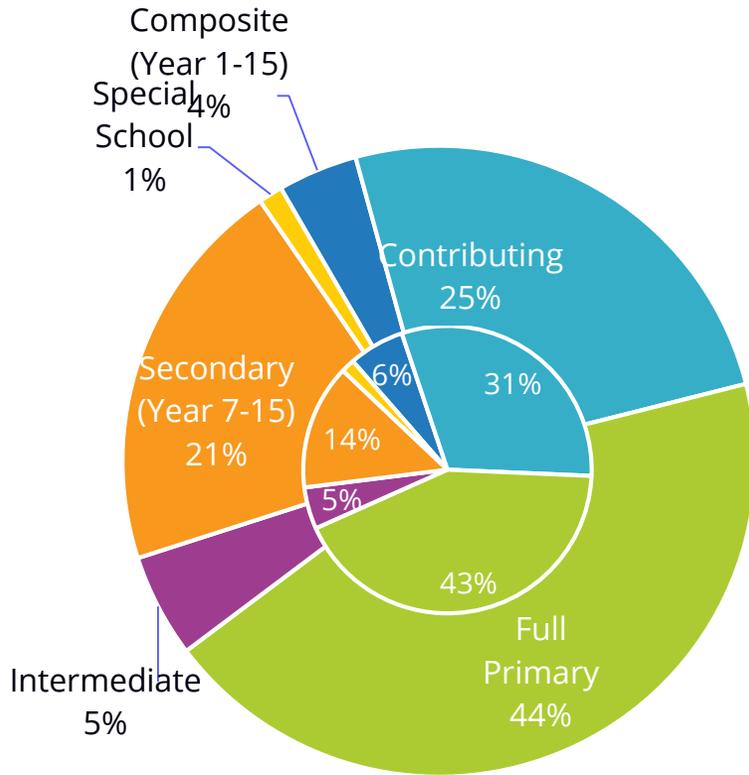


- Delving into the areas that schools are investing in, it becomes apparent that multiple measures are taken by schools – on average three methods are used by schools.
- One area of concern is the low rate of device management program deployment and low rates of student awareness on the appropriate actions to take to protect their data.
- Previous global research by IDC has demonstrated that cloud is being embraced as a tool in digital education. IDC's surveys of cloud computing and mobile device management have shown that most industries are reluctant to use cloud device management systems. However, when schools were asked the same question they indicated a much higher level of confidence in cloud solutions. (sources: IDC Cloudview Survey 2017 and IDC Mobility Survey 2017).

Appendix: Sample Demographics



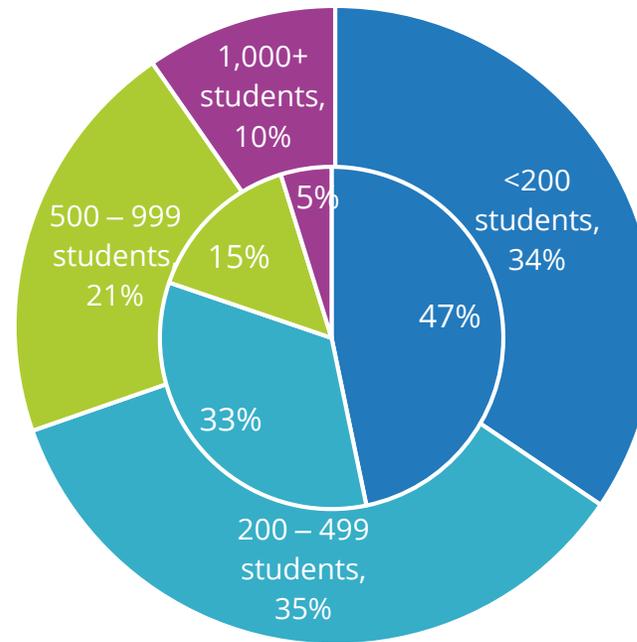
School Types



Outer Ring: Survey Sample
Inner: Actual school distribution

N=291

School Size



Regional Distribution

