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IWP IN-WORK POVERTY
Challenges of Getting By Among The Young

REPORT FROM "IN-WORK POVERTY AND THE CHALLENGES OF GETTING BY AMONG THE YOUNG"

Technological Attitudes, Devices, and Skills at Work and at Home

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Executive Summary

Background

This is a report on technological attitudes, devices, usage, and skills from the study on In-Work Poverty and the Challenges of Getting By Among the Young. The findings draw on waves 2, 3, and 4 of the survey. The report describes how these outcomes vary by four education levels: secondary qualifications and below; Institute of Technical Education (ITE) certificates; diploma or General Certificate of Education Advanced Level qualifications; and bachelor's degree or above. Where applicable, it also describes how these outcomes vary by age group (21 to 34 years versus 35 to 43 years).

Main Results

Across the domains of technological attitudes, access, and skills, a consistent relation by educational attainment emerges, with higher-educated respondents reporting more favourable attitudes towards technology, greater access to and usage of digital devices, and higher proficiency in most digital skills.

Attitudes towards and Adoption of New Technologies at Work

Overall, respondents expressed broadly positive attitudes towards new technologies in the workplace. However, higher-educated workers were more likely to agree with positively worded statements and less likely to agree with negatively worded statements about new technologies at work. Degree holders consistently reported the most favourable attitudes, demonstrating higher enthusiasm for technology, lower resistance to change, and less fear of job displacement. These disparities extend beyond attitudes to actual workplace experiences and adoption. Lower-educated respondents were markedly less likely to report that their workplaces prepared them for digital transformation and that they used new technology at work. Older respondents were more likely than younger respondents to have experienced workplace preparation and adoption of new technology, likely reflecting longer exposure to organisational change over their careers.

Computing Device Usage, Access, and Ownership

Inequalities by education level are also observed in digital device usage and access. We focus on laptops, desktop computers, and tablets in this report, excluding mobile phones. Higher-educated respondents were substantially more likely to use laptops or desktop computers frequently for both work and education. Device ownership followed a similar pattern, where degree holders reported the highest number of personal and household computing devices. Self-purchase was the most common

source of computing devices across our respondents. However, lower-educated respondents were less likely to have purchased their own devices and more likely to use devices obtained from schools or household members. Higher-educated respondents used laptops or desktop computers more than tablets and had sole usage of their devices. In contrast, lower-educated respondents used more tablets, compared to laptops or desktop computers, and were more likely to share them with household members, indicating more constrained and less exclusive access to digital devices.

Proficiency in Digital Skills

Digital skills proficiency varied considerably by skill type and educational attainment. Degree holders were the most proficient in AI- and coding-related skills, as well as IT security and software development, whereas respondents with lower educational qualifications reported relatively higher proficiency in digital social media marketing and video or photo editing. Younger respondents tended to report higher proficiency in using AI tools and editing photos or videos compared to older respondents. Beyond basic AI use, higher-educated and younger respondents were also more likely to use prompt engineering techniques such as giving clear instructions, assigning roles, and providing examples to improve the quality of generative AI outputs.

Implications

Taken together, the findings reveal various types of inequalities in how young workers engage with technology. Higher educational attainment is associated with more positive technological attitudes, greater workplace exposure to digital transformation, better access to and exclusive use of digital devices, and stronger proficiency in AI-related skills.

While lower-educated respondents may not currently require these digital devices and skills in their jobs, their lower access and exposure may limit their participation in further training and technology-intensive job opportunities. Thus, we suggest a two-pronged approach to address this potentially widening gap between workers. First, to reinforce the professionalisation and accreditation of blue-collar occupations and skilled trades to recognise the value of their skills. Second, to strengthen outreach and provide more opportunities for lower-educated workers to adopt AI in their workplaces to narrow the AI proficiency gap.

Chapter 1: Introduction

Background

1.1 This report from the study on In-Work Poverty and the Challenges of Getting By Among the Young presents findings on the following outcomes:

- Technological attitudes at work,
- Digital device usage, access and ownership, and
- Digital skills literacy.

1.2 The results of this report are derived from waves two, three, and four of our panel survey. We included all respondents who completed each wave, which are 1,389, 1,568, and 1,370 respondents respectively, corresponding to the years 2022, 2024, and 2025 (refer to Ng et al., 2022 for the baseline sampling strategy). We compared these outcomes based on the participants' highest level of education and age group.

1.3 The findings in this report draw on responses from different waves of the survey, as some questions were included in only one wave and not repeated due to their low likelihood of changing year on year. Thus, we reported snapshot findings from the relevant wave along with the corresponding sample from which they were derived.

1.4 We classified respondents' highest educational qualification into four levels (refer to the glossary for definitions):

- Respondents with secondary or below qualifications (henceforth referred to as secondary-educated respondents),
- Holders of certifications from the Institute of Technical Education (ITE) (henceforth referred to as ITE certificate holders),
- Respondents with Diploma or the General Certificate of Education Advanced Level (GCE A-Level) qualification (henceforth referred to as diploma holders),
- Graduates with a bachelor's degree or above (henceforth referred to as degree holders).

1.5 We report only statistically significant differences in the subsequent sections, at the 10% level of significance.

Chapter 2: Technological Attitudes at the Workplace

2.1 Attitudes towards the adoption of new technology in workers' job tasks at work comprise three dimensions. Firstly, technology enthusiasm, which refers to an intrinsic motivation to use new technology. Secondly, workers' resistance to change resulting from new technology, which hinders its implementation. Thirdly, technology-based job insecurity, which arises from the workers' fear of automation replacing their jobs (Hampel et al., 2022). These dimensions are captured by six items on a five-point Likert scale that were asked in wave 3, conducted in 2024.

2.2 We reported the proportion of respondents who agreed[1] with each of the following items:

- Improve work – new technologies introduced in their company could improve and add value to their work.
- Tech as opportunity – new technologies in their job are considered as an opportunity and not as a risk.
- Enjoy learning tech – they enjoyed learning how to use new technologies for their job.
- Job difficult – new technologies made their job more difficult than easier.
- Cont. without tech – when a new technology is introduced in their job tasks, they would rather continue their usual activity without technology.
- Take over job – if new technologies are introduced into their company, they could take over the tasks in their job.

2.3 Overall, our respondents reported positive attitudes towards new technology at work, with at least 70% agreeing that new technology improved their job, presented opportunities, and made their work enjoyable (Figure 2.1). In contrast, between 16% and 22% of the respondents agreed with the negatively worded items – that new technologies make their job more difficult, that they would rather continue their job without it, and that new technologies could take over their job tasks (Figure 2.2).

2.4 Degree holders had the highest proportions who responded positively to the six items, indicating the most favourable attitudes towards new technology at work (Figures 2.1 and 2.2). For example, 87% of them agreed that new technologies improve and add value to their work (Figure 2.1). Also, only 11% agreed that they would rather continue their usual job activities without adopting new technologies, and 16% feared that new technologies would take

[1] Agreed and strongly agreed on a five-point Likert scale.

over their job tasks (Figure 2.2). Among these items, they demonstrated greater technological enthusiasm than acceptance of technological change and confidence that their jobs will not be displaced by technology.

Figure 2.1: Agreement with positive technological attitudes by highest educational qualification

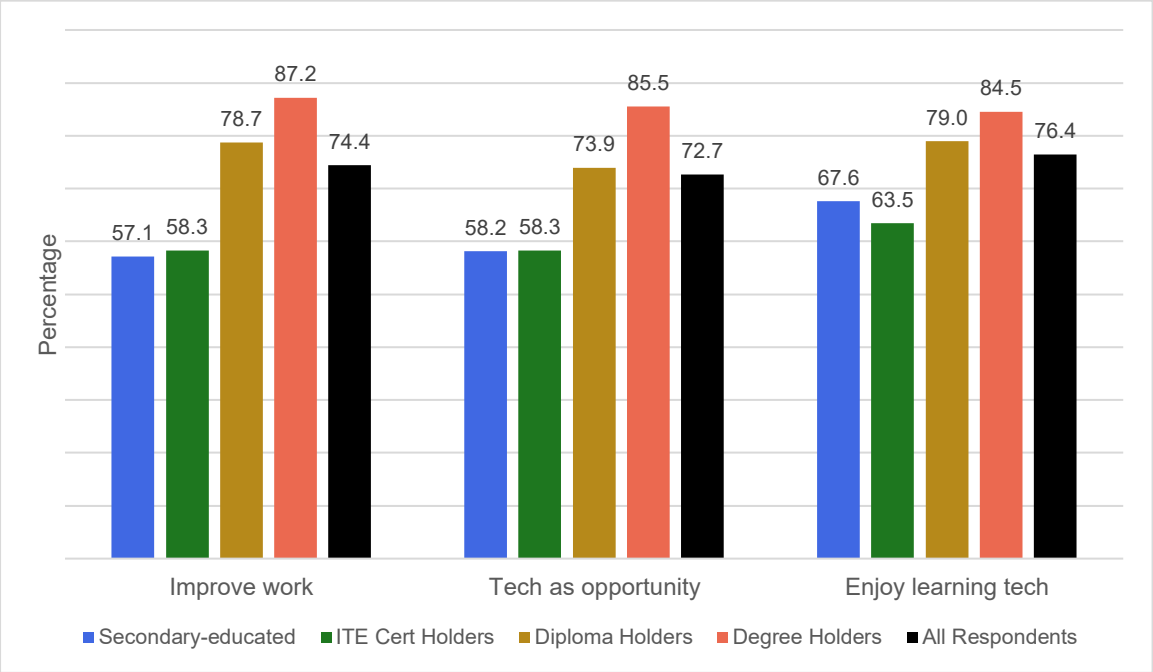
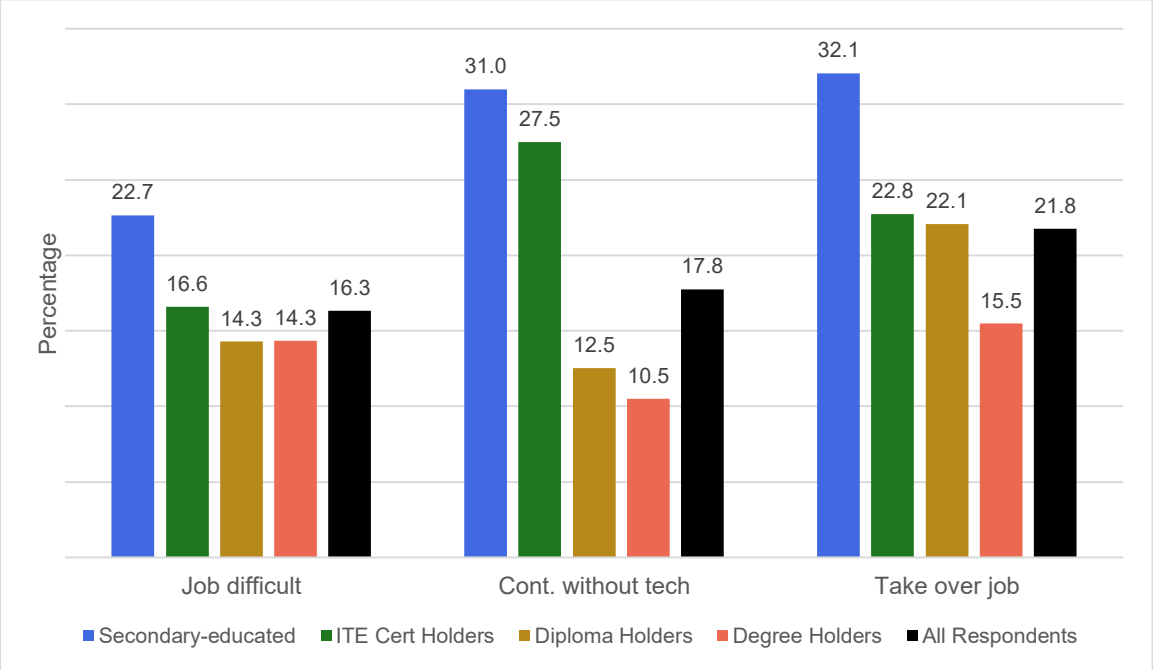


Figure 2.2: Agreement with negative technological attitudes by highest educational qualification



2.5 Degree holders were the most likely to agree that technology improved their work (87%), provided opportunities (86%) and enjoyed learning new

technologies (85%) (Figure 2.1). Meanwhile, secondary-educated respondents were most likely to agree with negatively phrased items (Figure 2.2). Twenty-three percent agreed that technology made their jobs more difficult, that they would rather continue their job activities without new technology (31%) and that new technologies could take over their job tasks (32%). Thus, they had higher resistance to technological change and technology-related job insecurity than higher-educated respondents.

2.6 Older respondents (aged 35 to 43) reported similar levels of receptiveness towards new technology at the workplace as younger respondents (aged 21 to 34) (Figures 2.3 and 2.4).

Figure 2.3: Agreement with positive technological attitudes by age group

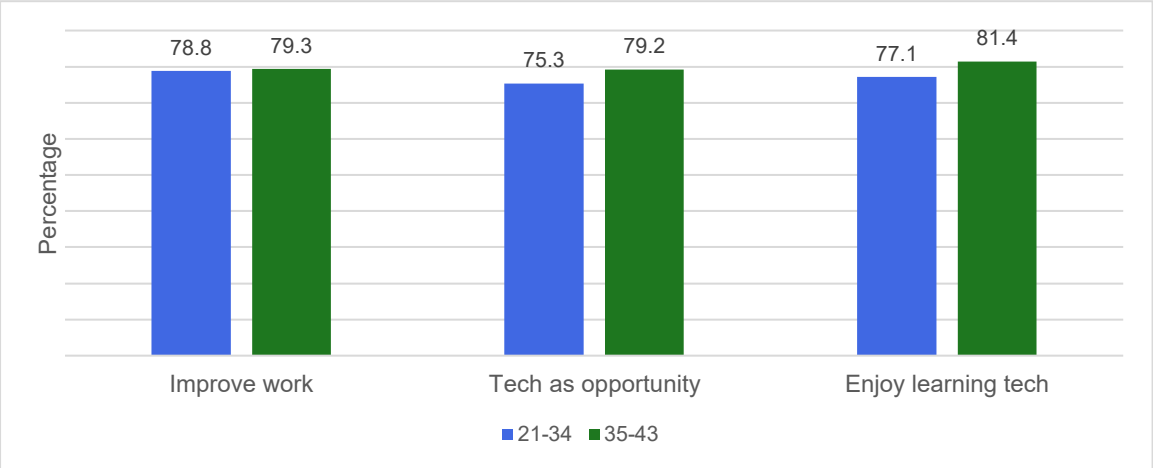
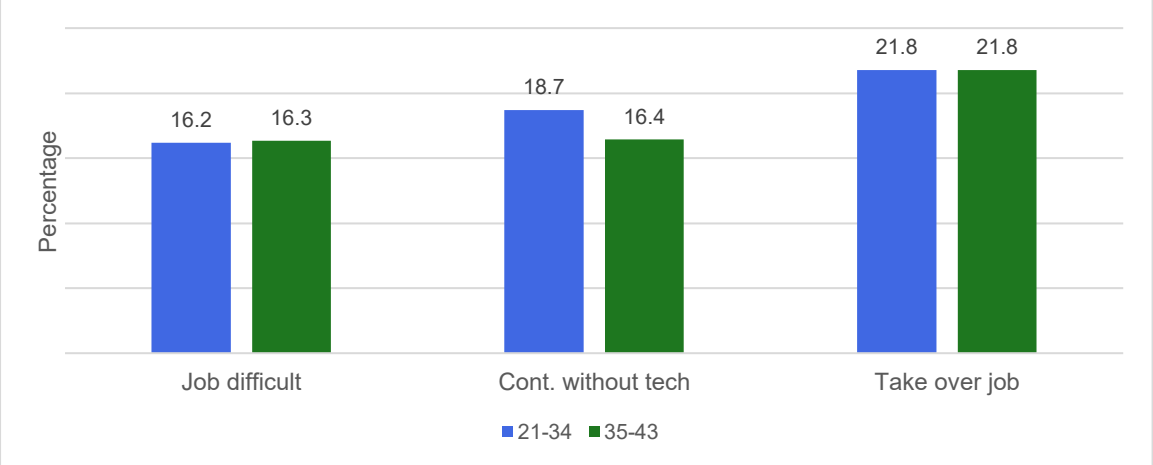


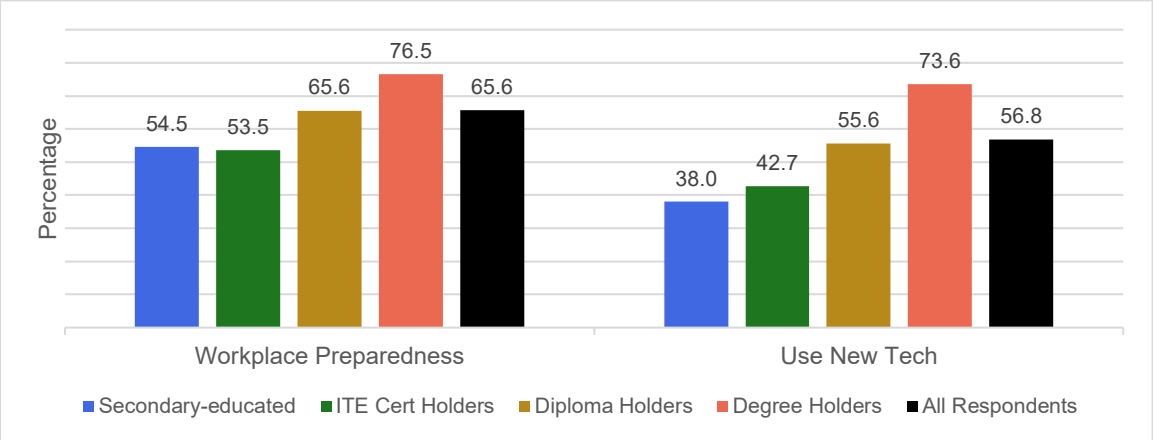
Figure 2.4: Agreement with negative technological attitudes by age group



2.7 While respondents held different levels of receptiveness towards the adoption of new technology at work, their receptiveness did not necessarily translate into preparedness and actual adoption of new technologies. Thus, we reported the proportions of employed respondents who indicated that they experienced the following:

- Workplace Preparedness – their employers or organisations are helping them to understand and prepare for changes in their work processes due to digital transformations such as analytics, robotics, and artificial intelligence.
- Use New Tech – respondents who had to use new technology at work within the year before the survey.

Figure 2.5: Preparation and usage of new technology at work by highest qualification attained

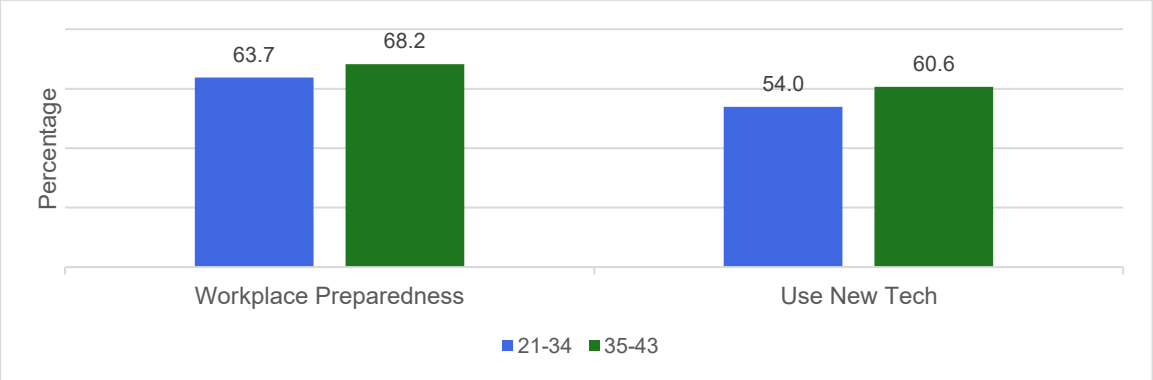


2.8 Sixty-six percent of our respondents indicated that their organisations help them understand and prepare for changes in their work due to digital transformations (Figure 2.5). Degree holders were the most likely to report workplace preparedness (77%), while ITE certificate holders were the least likely to report likewise (54%).

2.9 Fifty-seven percent of our respondents stated that they had to use new technology at work (Figure 2.5), unlike the higher rates reported for positive attitudes towards technology (Figure 2.1) and workplace preparedness.

2.10 Higher-educated respondents were more likely to use new technology at work, with 74% of degree holders indicating this, but only 38% of secondary-educated respondents reporting likewise (Figure 2.5).

Figure 2.6: Preparation and usage of new technology at work by age group



2.11 Older respondents aged 35 to 43 were more likely to have experienced workplace preparation (68%) and adoption of new technology (61%) compared to younger respondents aged 21 to 34 (64% and 54% respectively) (Figure 2.6).

2.12 Overall, more than half of our respondents reported favourable attitudes, preparedness, and adoption of new technology. Higher-educated respondents reported more favourable attitudes towards the adoption of new technologies at work. Higher-educated respondents and older respondents were also more likely to receive preparation for digital transformation and actually use new technologies in their job.

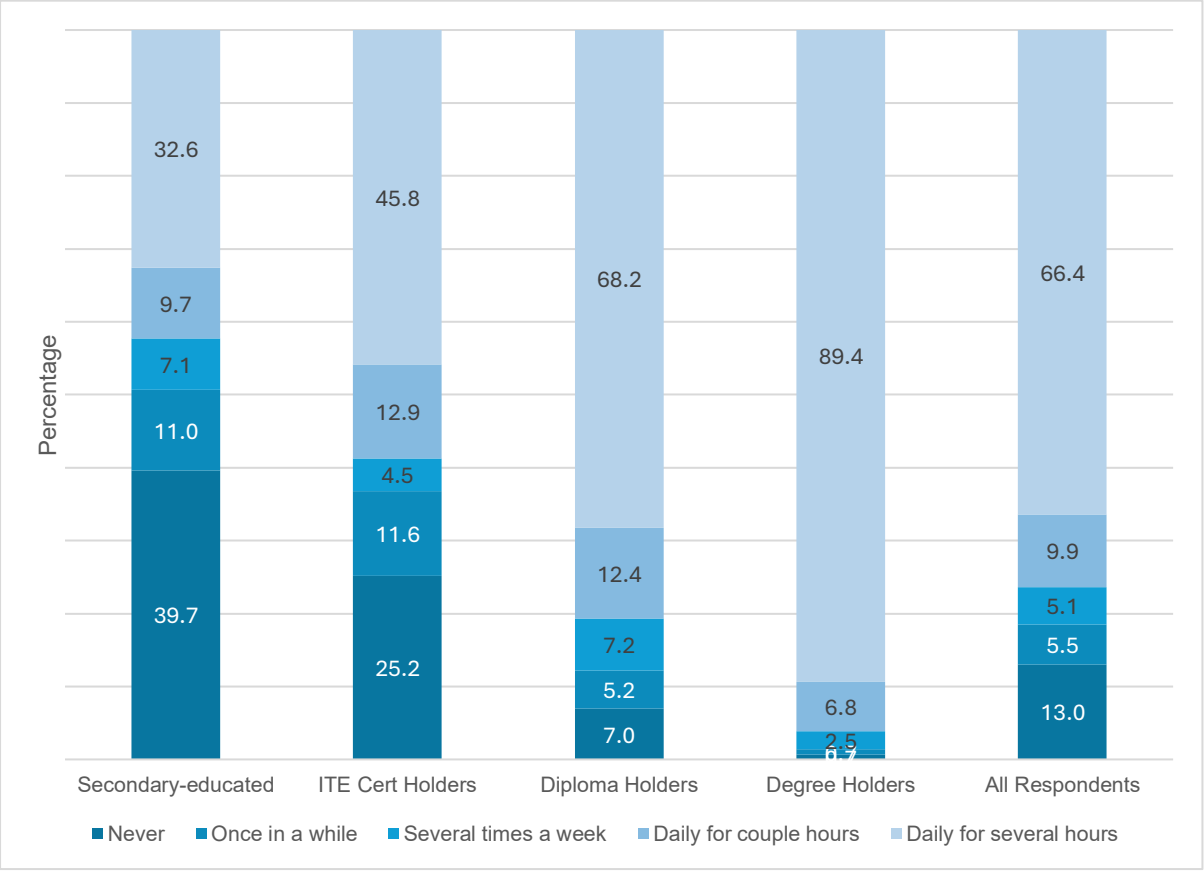
Chapter 3: Digital Device Usage and Ownership

3.1 This section describes our respondents' usage, access, and ownership of digital devices. In our survey, digital devices refer only to laptops, desktop computers, and tablets, excluding mobile phones. We first report how frequently respondents used digital devices for work, education and training, followed by their access to these devices at personal and household levels. As device access does not necessarily imply sole ownership, we also report respondents' device source and ownership. Our results are obtained from wave 2, when the survey was conducted primarily in 2022.

Digital Device Usage

3.2 More than half of our respondents used a digital device for work daily for several hours (66%). The frequency of using a digital device for work increased with educational qualification levels. Degree holders were the most likely to use a digital device for work daily for several hours (89%), while secondary-educated respondents were least likely to do so (33%). Concurrently, about 40% of secondary-educated respondents have never used a digital device at work, while less than 1% of degree holders reported likewise (Figure 3.1).

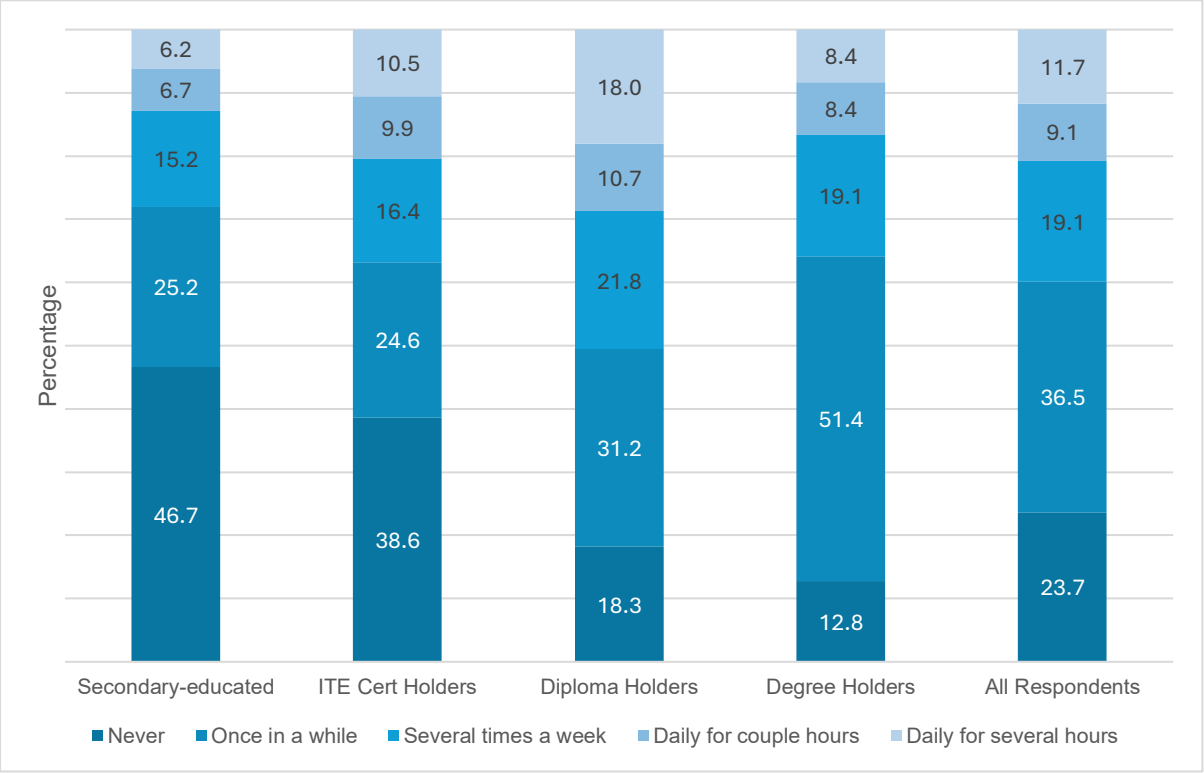
Figure 3.1: Frequency of using digital device for work by highest educational qualification



3.3 More than a third of all respondents used a digital device for education or training once in a while (37%), while another 40% of them reported likewise several times a week or more.

3.4 The frequency of using a digital device for education or training increased with educational qualification levels. Degree holders were the most likely to use a digital device for education or training once in a while or more (87%). Diploma holders had the largest proportion of respondents who used a device daily for education or training for several hours (18%). In contrast, 47% of secondary-educated respondents have never used a digital device for education or training (Figure 3.2).

Figure 3.2: Frequency of using digital device for education or training by highest educational qualification



Digital Device Access, Sources, and Ownership

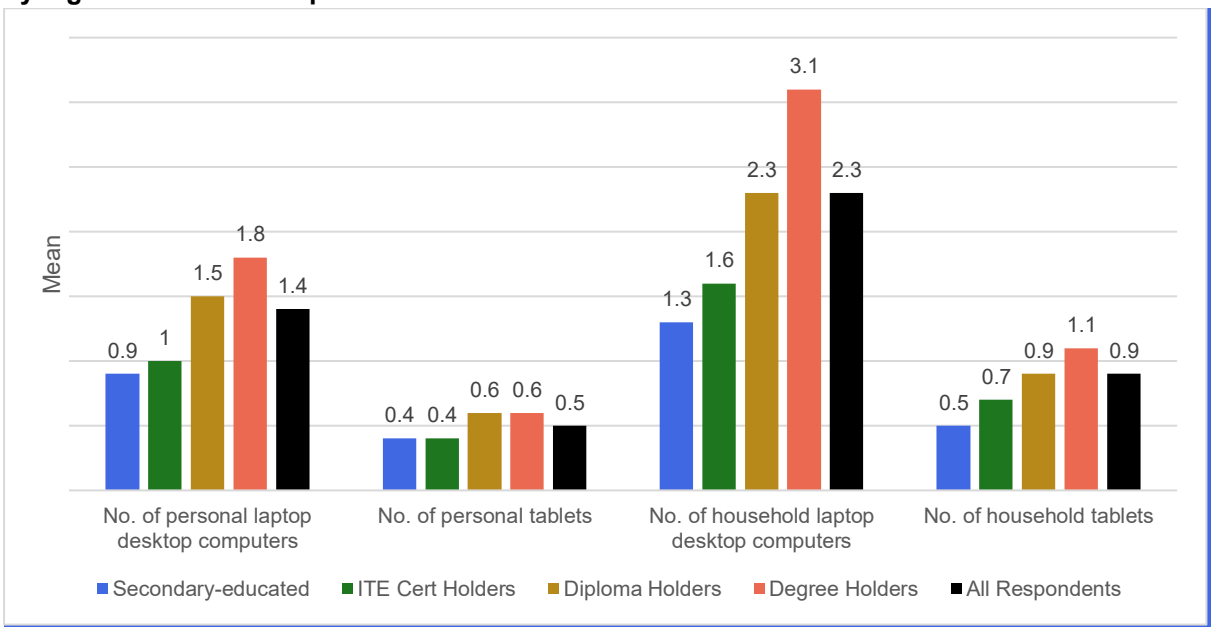
3.5 As the frequency of device usage is related to access to digital devices, we asked respondents to report the numbers of tablets and desktop or laptop computers that they personally have and that their household members have.

3.6 Overall, our respondents had access to more laptops or desktop computers than tablets. On average, respondents had 2.3 household laptops or desktop computers and 1.4 personal laptop or desktop computers respectively (Figure 3.3). Respondents reported a mean of 0.9 household tablets and 0.5 personal

tablets, suggesting that many respondents do not have access to tablets.

3.7 The mean numbers of laptops or desktop computers and tablets that respondents have access to increased with highest educational qualification. Degree holders had the highest mean numbers across both types of devices and settings (3.1 household laptops or desktop computers, 1.8 personal laptops or desktop computers, 1.1 household tablets, and 0.6 personal tablets). Contrastingly, secondary-educated respondents had the lowest mean numbers across both types of devices and settings (1.3 household laptops or desktop computers, 0.9 personal laptops or desktop computers, 0.5 household tablets, and 0.4 personal tablets) (Figure 3.3).

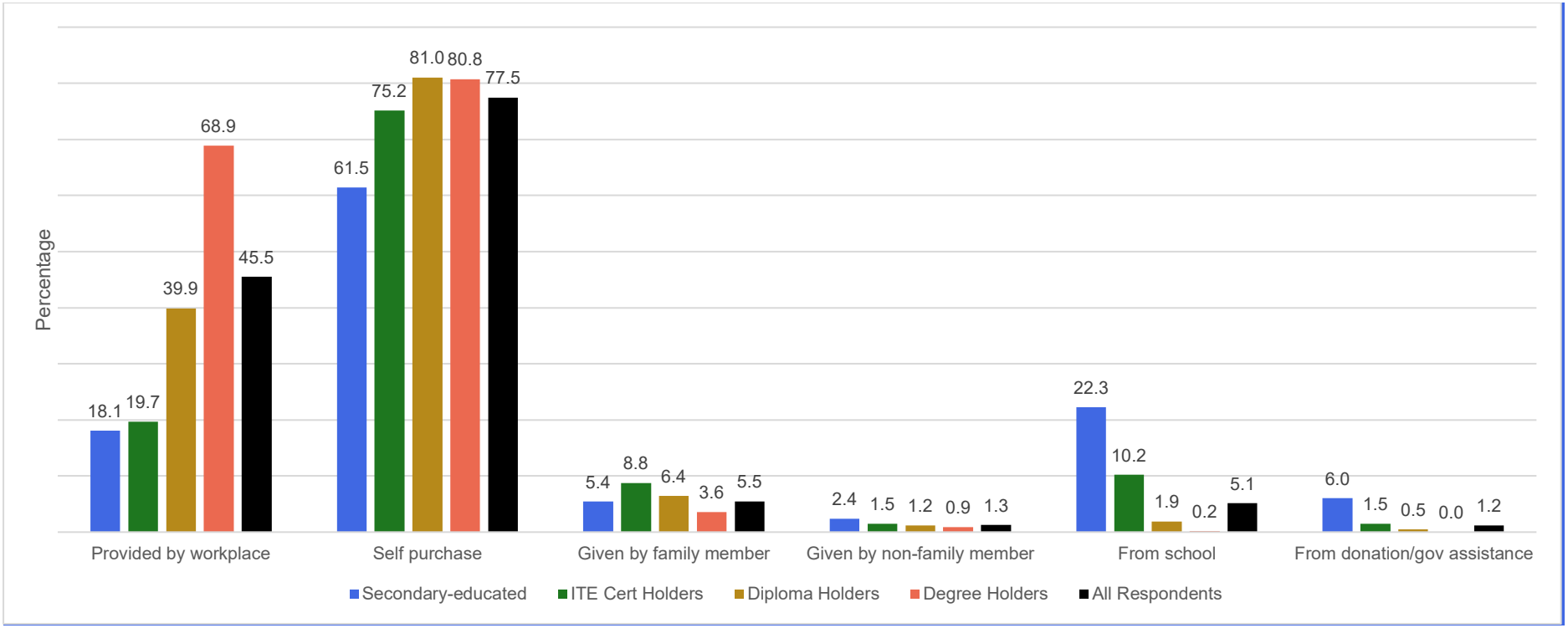
Figure 3.3: Mean number of laptops or desktop computers and tablets that respondents have by highest educational qualification



3.8 Self-purchase was reported as the most common source of personal laptops or desktop computers across all educational levels. More than three quarters of respondents bought their personal laptops or desktop computers (78%). While over 80% of degree and diploma holders purchased their laptops or desktop computers, only 62% of secondary-educated respondents reported likewise (Figure 3.4).

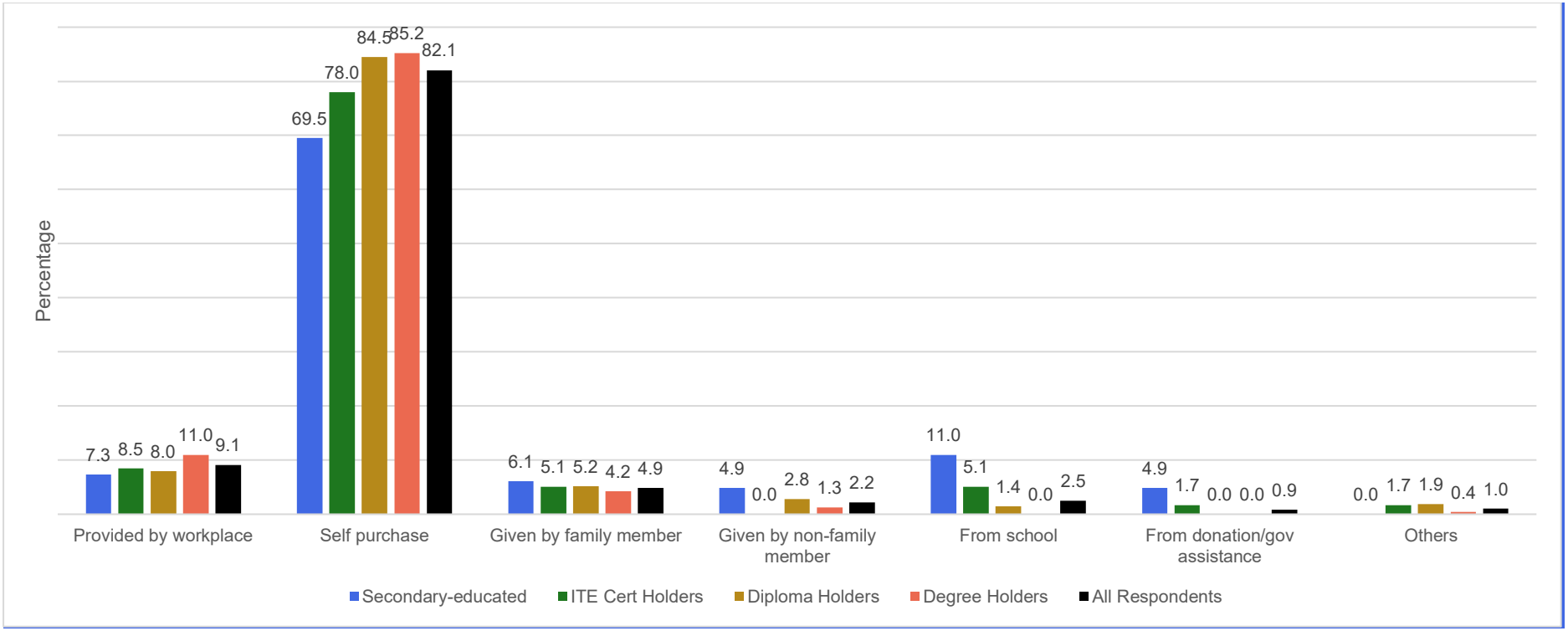
3.9 The next common source of personal laptops or desktop computers was the respondents' workplace (46%). Respondents with higher educational qualifications were more likely to obtain them from their workplace. Sixty-nine percent of degree holders obtained personal laptops or desktop computers from their workplace compared to 40% of diploma holders, 20% of ITE certificate holders, and 18% of secondary-educated respondents (Figure 3.4).

Figure 3.4: Sources of personal laptops or desktop computers by highest educational qualification



Note. As respondents may own more than one laptop or desktop computer, they may choose more than one option in this figure.

Figure 3.5: Sources of tablets by highest educational qualification



Note. As respondents may own more than one tablet, they may choose more than one option in this figure.

3.10 Other sources of personal laptops or desktop computers were much less common among our respondents, with 6% given by family members, 5% by schools, and 1% each by non-family members and donations or government assistance (Figure 3.4).

3.11 Respondents with lower educational qualifications were more likely to obtain personal laptops or desktop computers from schools. Twenty-two percent of secondary-educated respondents and 10% of ITE certificate holders obtained their personal computing devices from school, compared to only 2% diploma holders and 0.2% of degree holders (Figure 3.4).

3.12 The sources of personal tablets are similar to that of personal laptops or desktop computers. Self-purchase was also reported as the most common source of personal tablets among respondents generally, with 82% of them who bought their personal tablets. Respondents with higher educational qualifications were more likely to buy their personal tablets. Eighty-five percent of degree holders and diploma holders bought their personal tablets, followed by 78% of ITE certificate holders and 70% of secondary-educated respondents (Figure 3.5).

3.13 The next common source of tablets was the respondents' workplace, but they reported a lower proportion of 9% compared to 46% for computing devices. Other sources of tablets were less common with 5% given by family members, 3% by schools, 2% by non-family members, and 1% each by donations or government assistance and other sources (Figure 3.5).

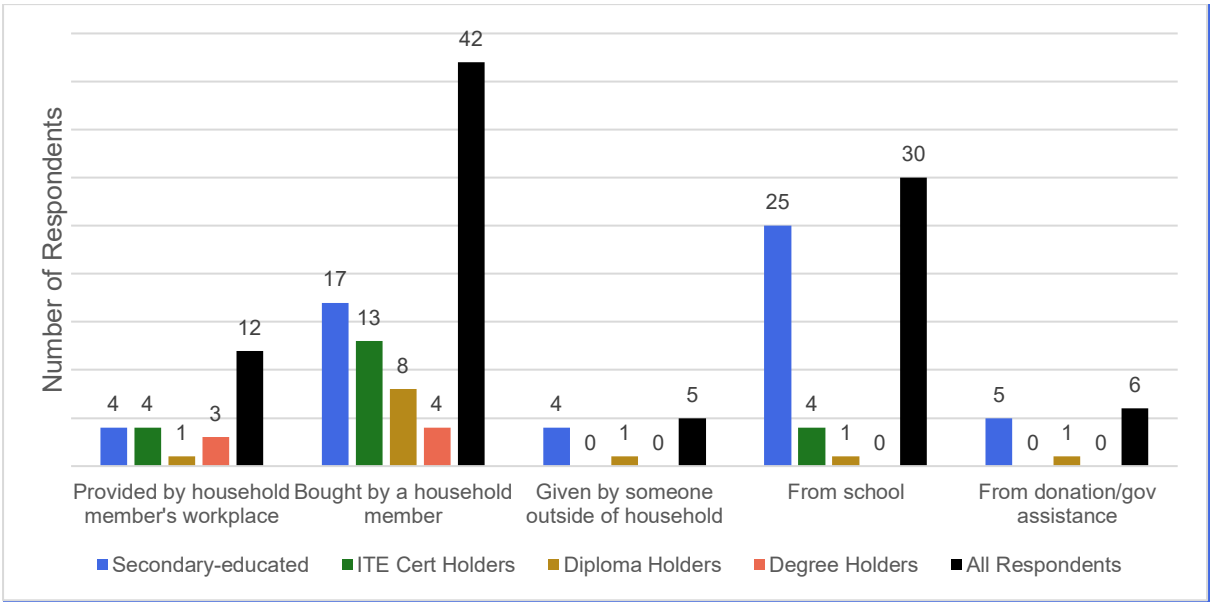
3.14 Respondents with lower educational qualifications were more likely to obtain their personal tablets from school. Eleven percent of secondary-educated respondents obtained their personal tablets from school, compared to 5% of ITE certificate holders, 1% of diploma holders, and none of the degree holders (Figure 3.5).

3.15 Eighty-one respondents did not have access to any personal laptop, desktop computer, or tablet, but reported that their household members have access to at least one of these devices. We asked these respondents how their household members obtained their digital devices, regardless of the type of device. Forty-two of them indicated that their household digital devices were purchased by household members (Figure 3.6). Respondents with lower educational qualifications were more likely to report that their household members purchased the household devices. No degree holders obtained their household digital devices through someone outside of their household, school nor donation/government assistance (Figure 3.6).

3.16 The next common source of household devices was reported as the school (n=30). Respondents with lower educational qualifications were more likely to have household members who obtained their digital devices from schools. Twenty-five of secondary-educated respondents obtained their household digital device from school, compared to four ITE certificate holders, one diploma holder, and none of the degree holders (Figure 3.6).

3.17 The other sources of digital devices that were reported include household member's workplaces (n=12), donations or government assistance (n=6), and someone outside of household (n=5) (Figure 3.6).

Figure 3.6: Sources of household digital devices, excluding respondents with personal devices, by highest educational qualification



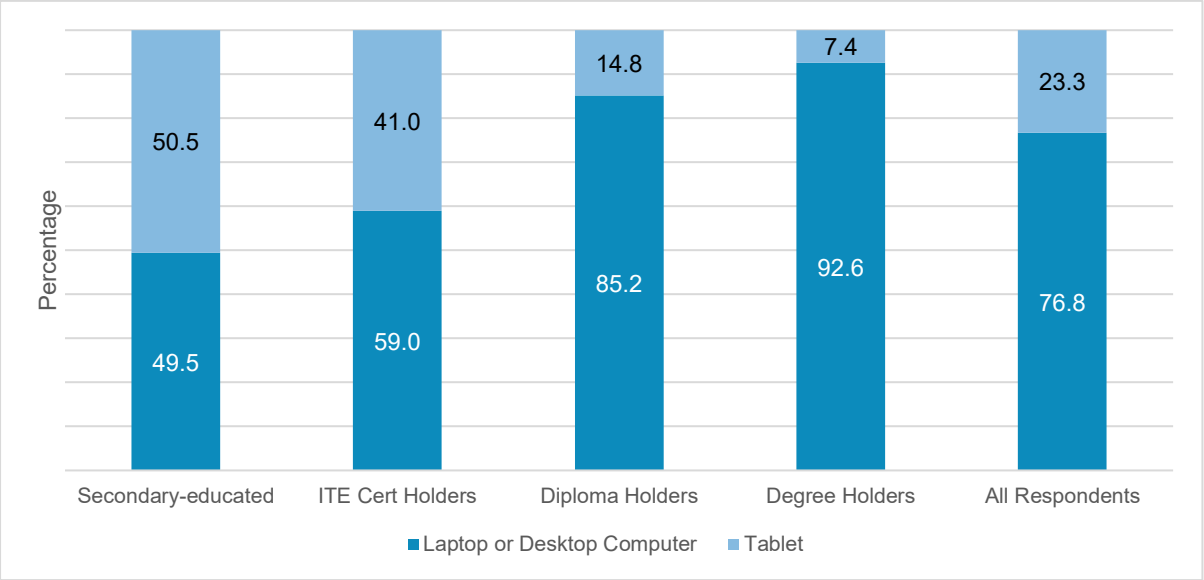
Note. The results reported in this figure are small as they are based on 81 respondents who did not own personal digital devices. Thus, we reported frequencies instead of percentages for a more accurate representation of the results. As respondents households may have more than one device, they may choose more than one option in this figure.

3.18 Among our respondents with access to personal digital devices, more than three quarters of them (77%) used their laptops or desktop computers more often than their tablets (23%) (Figure 3.7).

3.19 Higher-educated respondents were more likely to use laptops or desktop computers more often than tablets. Degree holders were the most likely to use a laptop or desktop computer (93%), while secondary-educated respondents were least likely to do so (50%). Contrastingly, lower-educated respondents were more likely to use tablets more frequently. Secondary-educated respondents were the most likely to use a tablet more often than laptops or desktop computers (50%), while degree holders were the least

likely to do so (7%) (Figure 3.7).

Figure 3.7: More frequently used digital device by highest educational qualification



Note. The results reported in this figure are based only both (i) respondents who have both laptops or desktop computers and tablets and (ii) respondents with only one device type. Respondents with only one device type are assigned to the device type that they own.

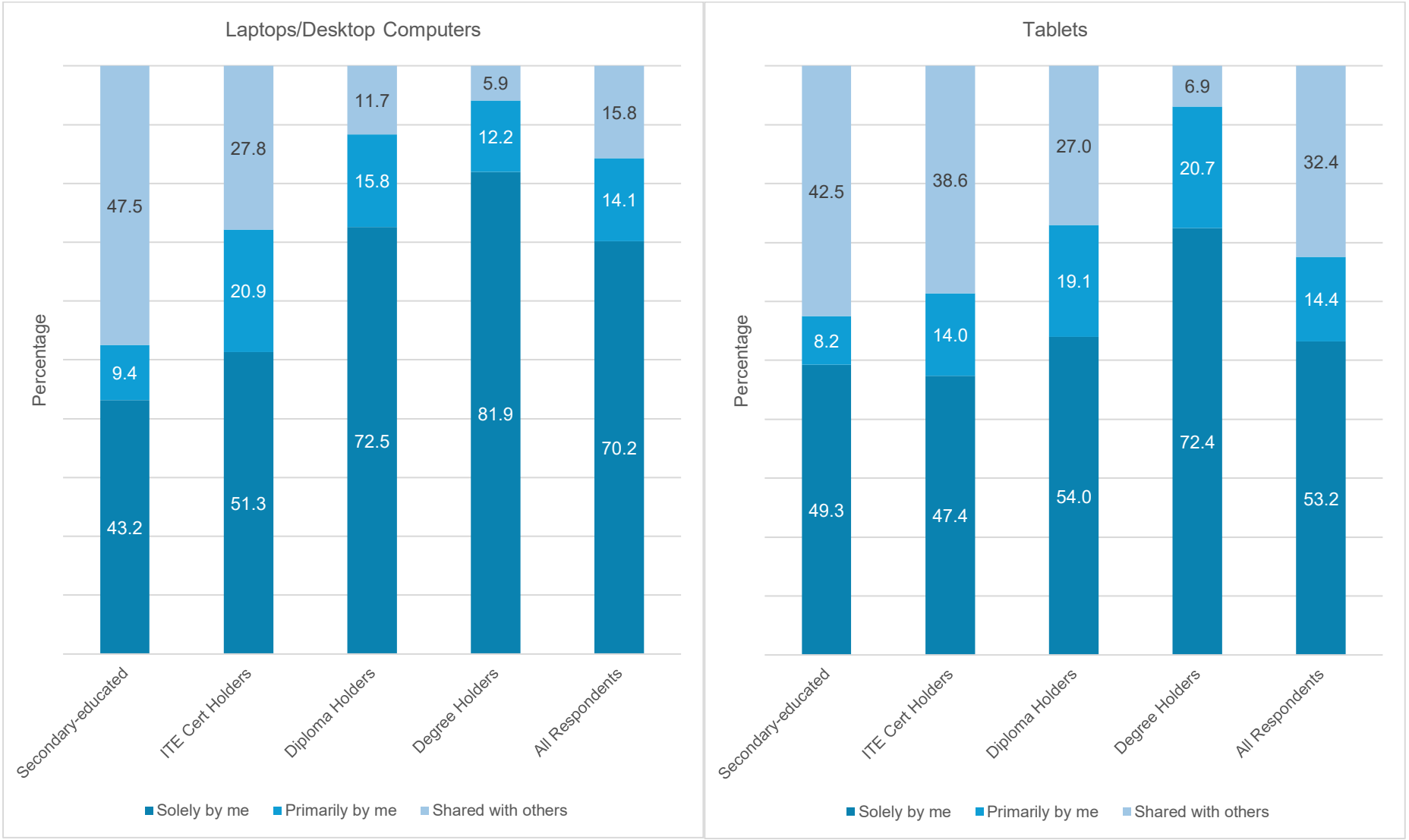
3.20 On device ownership, we asked respondents how much they had to share the device that they used more often. For both laptops or desktop computers and tablets, most of our respondents did not have to share them, with sole usage higher for laptops or desktop computers (70%) than for tablets (53%) (Figure 3.8).

3.21 Thus, sharing was more common for tablets than for laptops or desktop computers. For tablets, 32% of all respondents shared their tablets as compared to 16% who shared their laptops or desktops (Figure 3.8).

3.22 Respondents with higher educational qualifications were more likely to use both device types solely. Among degree holders, 82% used laptops or desktop computers and 72% used tablets solely. In contrast, less than half of secondary-educated respondents reported sole usage of devices, with 43% of them who used laptops or desktop computers solely and 49% of them who used tablets solely (Figure 3.8).

3.23 Given that lower-educated respondents used tablets more often while higher-educated respondents used laptops or desktop computers more often (Figure 3.7), the findings suggest that lower-educated respondents more likely had to share the device they used more often (i.e., tablets) than higher-educated respondents (i.e., laptops or desktop computers) (Figure 3.8).

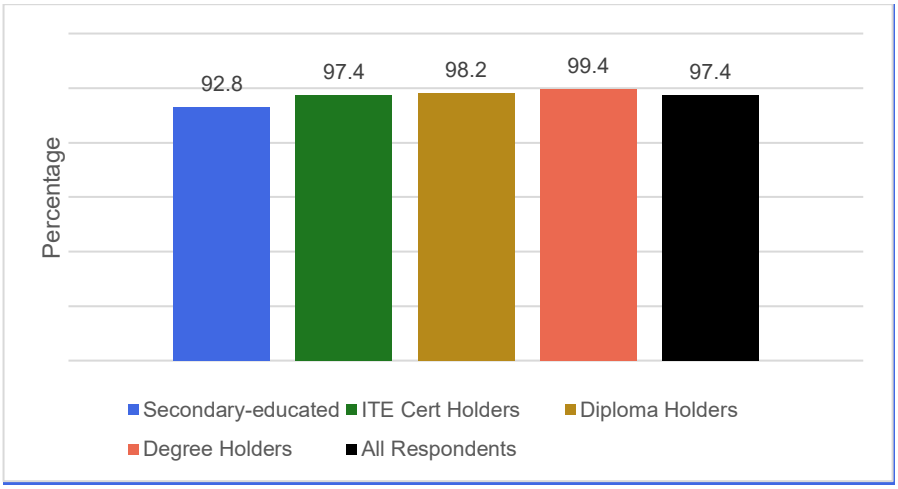
Figure 3.8: Sharing of more frequently used digital device by highest educational qualification and device type



Internet Connection

3.24 A majority (97%) of respondents had fixed-line broadband connection at home. The proportions of respondents with a fixed-line broadband connection at home increased with their level of education. Ninety-nine percent of degree holders had a fixed-line broadband connection at home compared to 93% of secondary-educated respondents (Figure 3.9).

Figure 3.9: Proportion of respondents with a fixed-line broadband connection at home by highest educational qualification



3.25 Among respondents who do not have a fixed-line broadband connection at home, most of them connect to the internet using mobile hotspot data.

3.26 In conclusion, the findings from this section highlight clear disparities in digital device usage and access based on the level of education. Higher-educated respondents more likely used and owned laptops or desktops exclusively, while lower-educated respondents tended to use tablets and share their devices with their household members. Higher-educated respondents also reported higher rates of using their digital devices for work and education.

Chapter 4: Digital Skills Literacy

4.1 Respondents rated their proficiency of seven digital literacy skills. Results from wave 4 (conducted in 2025) are reported in this section, where digital literacy was self-reported on a four-point scale from not at all proficient to very proficient. We reported the proportion of respondents who rated that they were quite or very proficient in each of the following digital literacy skills:

- Editing photos or videos
- Setting up IT security against malware, computer virus, and hacking, as well as fixing these problems.
- Designing web, user interface (UI) design, or user experience (UX) design.
- Marketing on digital social media platforms such as Tiktok, Facebook, X, and Instagram.
- Writing computer code or using programming software, statistical tools, or data visualisation libraries.
- Developing software or mobile applications. Examples of apps they developed include AI assistants, company-related menu applications, and apps for personal use.
- Using artificial intelligence (AI) tools or applications, such as ChatGPT.

4.2 The skills with the highest levels of proficiency reported by respondents were using AI tools or apps (47%), editing photos or videos (36%) and digital social media marketing (33%). Fewer respondents reported proficiency in other digital skills such as setting up IT security (17%), writing code (12%), designing web, UI, or UX (10%) and developing software or apps (6%).

4.3 Degree holders reported the highest proficiency in the following digital skills compared to the other levels of education: using AI Tools or Apps (61%), setting up IT security (19%), writing code (17%), designing web, UI, or UX (12%), and designing software or apps (7%). Contrastingly, degree holders were least proficient in editing photos or videos (32%) and digital social media marketing (29%) compared to respondents with lower educational qualification levels (Figure 4.1).

4.4 Diploma holders reported the highest proficiency in editing photos or videos (40%) and the lowest proficiency in developing software or apps (Figure 4.1).

Figure 4.1: Digital skills literacy by highest educational qualification (% quite or very proficient)

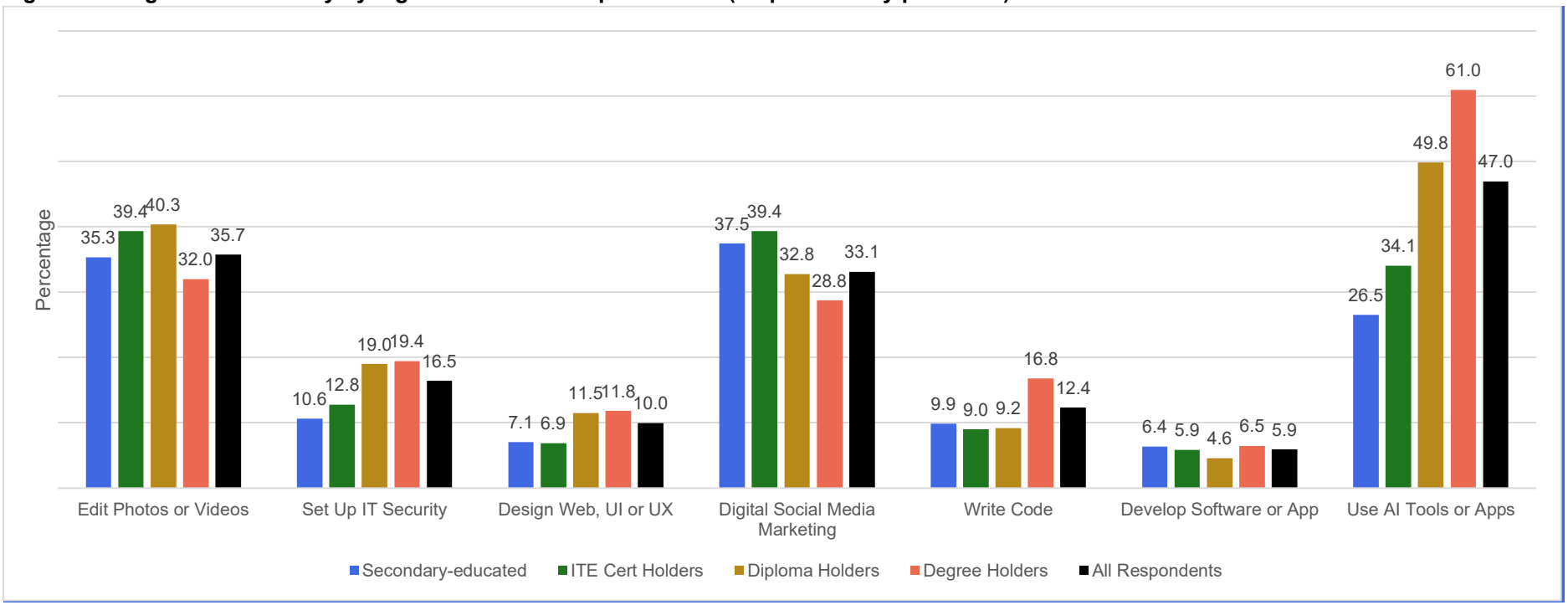
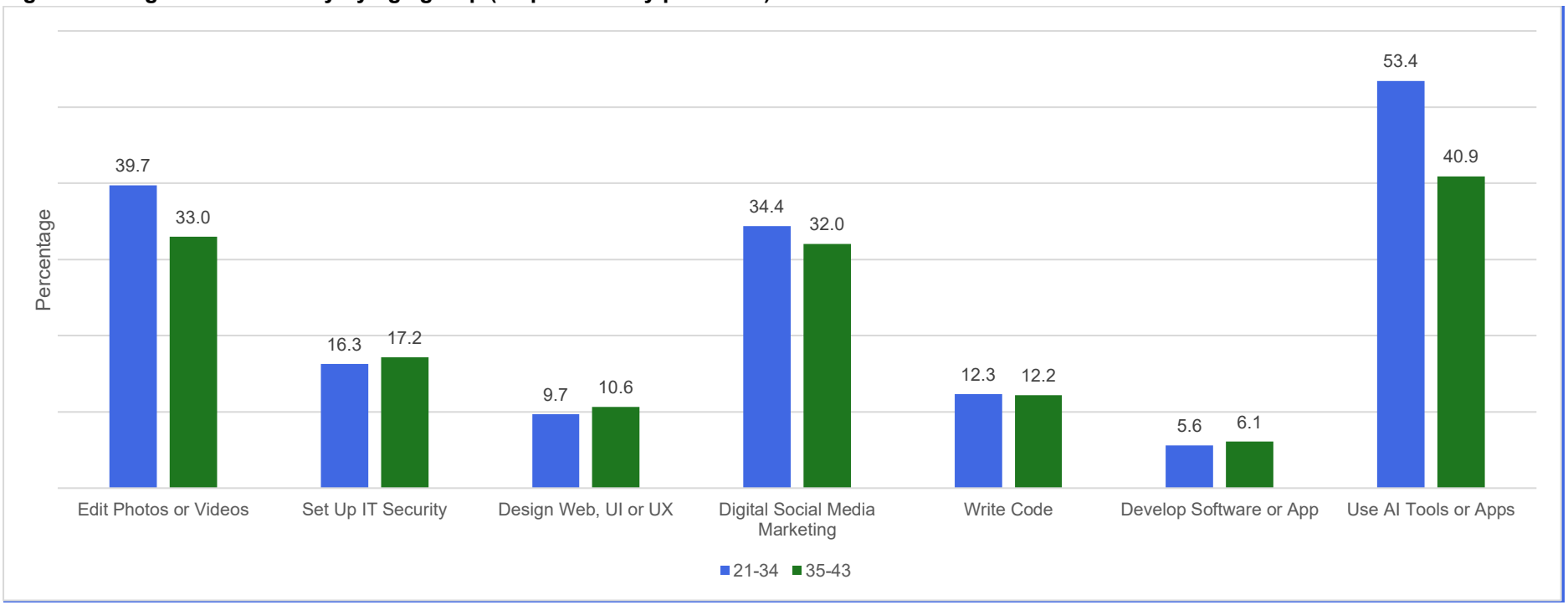


Figure 4.2: Digital skills literacy by age group (% quite or very proficient)



4.5 ITE certificate holders reported the highest proficiency in digital social media marketing (39%). They also had relatively higher proficiency in editing photos or videos (39%) (Figure 4.1).

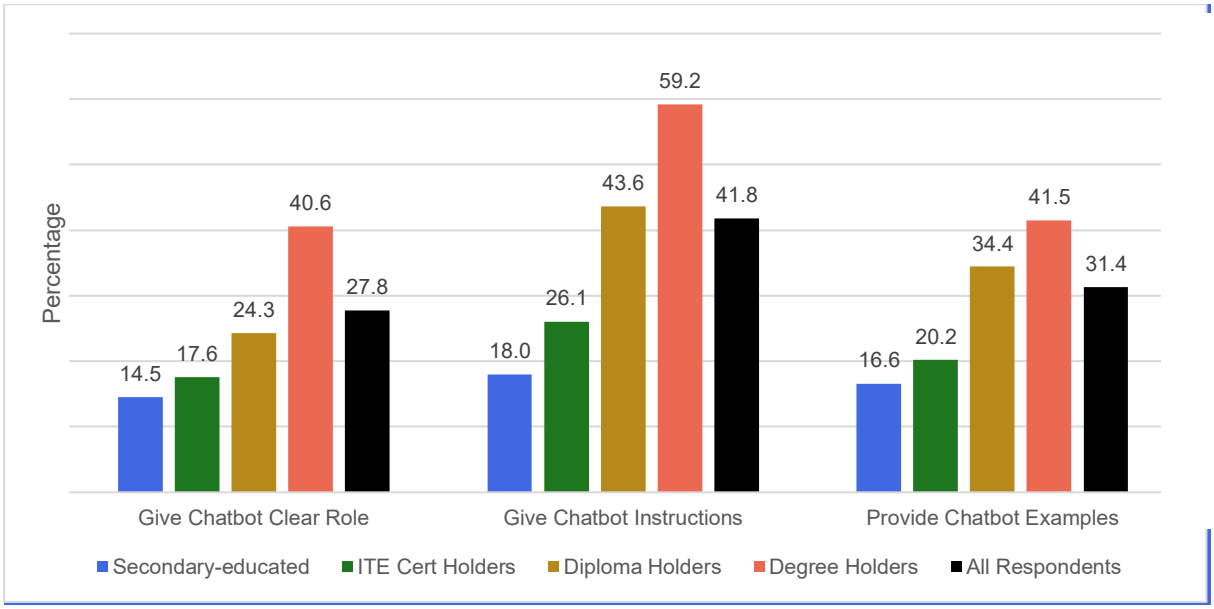
4.6 Secondary-educated respondents reported relatively higher proficiency in digital social media marketing (38%) than diploma and degree holders.

4.7 Digital literacy in these skills was similar across the two age groups, except for editing photos or videos and using AI tools or apps, where younger respondents aged 21 to 34 reported higher levels of proficiency (40% and 53% respectively), compared to older respondents aged 35 to 43 (33% and 41%) (Figure 4.2).

4.8 We also asked respondents about the frequency of using three prompt engineering techniques when working with generative AI and large-language-model-powered chatbots. Such techniques reflect skilled AI usage that would improve the quality of the chatbot's outputs. We reported the proportion of respondents who rated that they often or always used the following techniques when using generative AI:

- Give chatbot a clear role, such as "You are an expert in writing emails."
- Give chatbot clear and specific instructions.
- Provide chatbot with examples to help it improve its responses.

Figure 4.3: Frequency of skilled AI usage by highest educational qualification (% often or always)

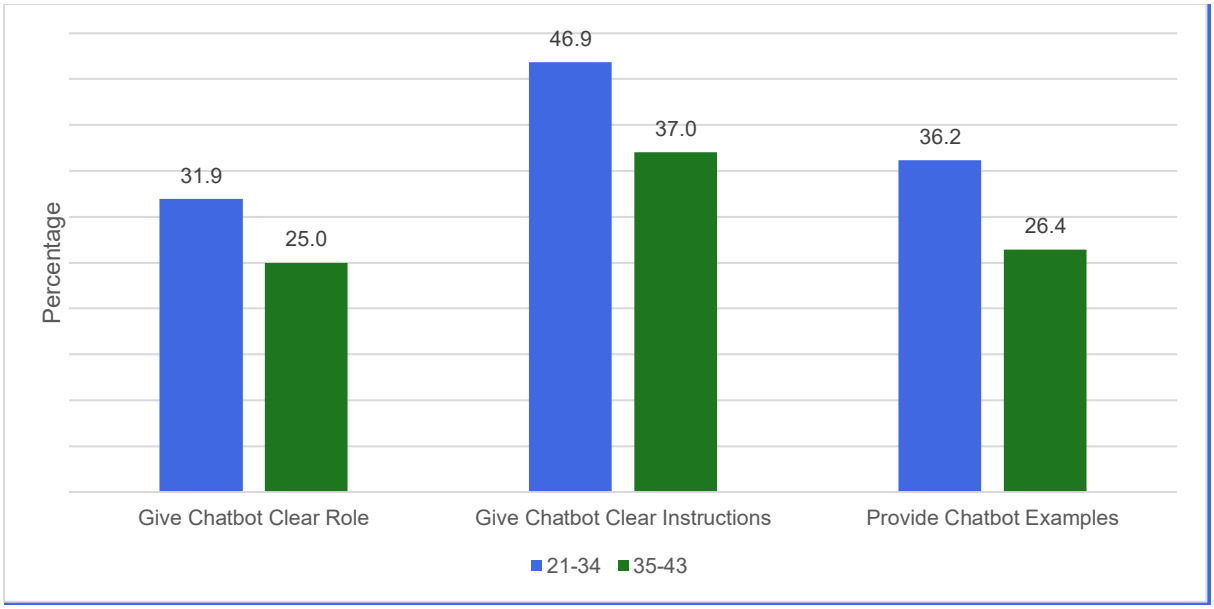


4.9 Overall, giving chatbots clear and specific instructions (42%) was the most frequently used technique reported by participants, followed by providing

chatbots with examples (31%) and giving it a clear role (28%) (Figure 4.3).

4.10 Respondents with higher educational qualifications were more likely to perform all three AI chatbot tasks. Among degree holders, 59% of them gave chatbots clear and specific instructions, 42% provided chatbots with examples, and 41% gave chatbots a clear role. Contrastingly, secondary-educated respondents were least likely to perform the respective AI chatbot tasks, with 18% giving clear and specific instructions, 17% providing chatbot with examples and 15% giving chatbots a clear role (Figure 4.3).

Figure 4.4: Frequency of skilled AI usage by age group (% often or always)



4.11 Younger respondents aged 21 to 34 were more likely to perform these AI chatbot tasks, with 47% giving clear and specific instructions, 36% providing examples, and 32% giving a clear role, in contrast to older respondents aged 35 to 43 (37%, 26%, and 25% respectively) (Figure 4.4).

4.12 In conclusion, digital skill literacy varies by both skill type and educational qualification. Degree holders were the most proficient in using AI tools, writing code, developing apps, designing web, UI, or UX, and setting up IT security. Lower educated respondents were more proficient in digital social media marketing and editing photos or videos. Higher-educated and younger respondents were more likely to perform tasks that improve the quality of AI chatbot outputs.

Chapter 5: Conclusion and Implications

5.1 Our findings on the technological disparities by education and age are unsurprising. Our report confirms the presence and extent of inequalities in perceptions of new technology, technological adoption, digital device usage and access, as well as generative AI adoption. Overall, lower-educated respondents reported:

- Lower self-ownership of laptops or desktop computers,
- Higher frequency of sharing their computing devices,
- Lower frequency of using their computing devices for work, education, and training,
- Lower workplace preparation and usage of new technologies,
- Lower frequency of both general AI usage and prompt engineering techniques,
- Lower agreement of perceived benefits of new technologies at work, and
- Higher agreement that new technologies might replace their job tasks, compared to higher-educated respondents.

5.2 These findings reflect that lower-educated workers face two layers of constraints in keeping up with rapidly advancing technological developments, especially AI. First, they face *access* constraints. Laptops and desktop computers have different technical capabilities compared to tablets. Laptop and computers have higher processing power and capacity to host up-to-date software programmes that are more appropriate and conducive for education and training in new technologies (Napoli & Obar, 2014). Granted, some lower-educated workers may not need to use laptops and desktop computers for on-the-job training purposes or to complete their current job responsibilities. However, limited access to these devices can affect transition to technology-intensive jobs in the future.

5.3 Second, they face *exposure* constraints. Lower-educated workers, especially those in jobs characterised by manual labour, are unlikely to learn and use the latest technologies like AI, both on the job and via skills training. Lower-educated workers consistently reported the lowest training participation (see Ng et al., 2025). Based on waves 3 and 4 findings, even though lower-educated respondents used more AI over time, they still fell behind higher-educated respondents. These corroborate with findings from a study by the Institute of Policy Studies, which points to an emerging AI disparity by workers' level of education (Teo, 2026). Given the rising prevalence of AI adoption in jobs in Singapore, especially generative AI chatbots, these findings suggest that lower-educated young workers are less prepared and equipped than their higher-educated counterparts to take on job tasks and

roles that require AI usage.

5.4 The findings point to two important implications for lower educated workers in blue-collar jobs. On one hand, entry-level white-collar jobs are said to face disproportionately more risk of generative AI displacement than blue-collar labour-intensive work (Brynjolfsson et al., 2025; Ford, 2015). This suggests less need for blue-collar workers to learn and use AI. On the other hand, if career prospects and wages of blue-collar jobs are stagnant, with the hollowing out of middle-level jobs, lower-educated workers will face a steeper climb to access higher paying AI-augmented jobs. If lower-educated workers wish to move into AI-enhanced white-collar jobs with better prospects, they face access and exposure constraints to make this leap. Their digital resources and skillsets may fail to catch up with these digital transformations as they face a steeper learning curve. This becomes a negative feedback loop, where working in blue-collar jobs makes it more challenging to access, learn, and use new technologies.

5.5 Thus, we highlight two policy implications. First, this potential bifurcation suggests the importance of developing blue-collar occupations and skilled trades, which current policy measures such as the professionalisation of electrical and technical occupations are addressing.

5.6 Second, in tandem with the national strategy for broad-based AI adoption (Ministry of Manpower, 2026), lower-educated workers will require more outreach, enabling environments, and intensive AI training to close the gap between them and their higher-educated counterparts. While new measures such as free access to premium AI tools help reduce cost barriers, lower-educated workers are still less likely to benefit from this measure if they do not take up these courses that may not be currently relevant to their work. Better preparing lower educated young workers for AI-augmented jobs can also be an opportunity to rebuild a less polarised workforce (Autor, 2024).

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Glossary

Highest educational qualification

Secondary and below	Secondary qualifications include GCE 'N' and 'O' Level or equivalent (MOM, 2021). This category also includes all qualifications below secondary.
ITE	Includes ITE Nitec, ITE Higher Nitec, and WSQ certification or equivalent.
A-level and Diploma	Includes GCE 'A' Level or equivalent. Diploma and professional qualifications include diplomas and post-diplomas by a polytechnic, diplomas or other qualifications by a professional body or vocational institution (MOM, 2021).
Degree and above	This includes Bachelor's degree, Master's degree, Doctoral degree, and postgraduate diploma or certificate (MOM, 2021).