



Teaching with Tech: the role of education unions in shaping the future

Dr Christina J. Colclough
September 2020



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**Education
International
Research**

Teaching with Tech: the role of education unions in shaping the future

Report of a survey conducted by EI
July - September 2020

Dr Christina J. Colclough
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Education International (EI)

Education International represents organisations of teachers and other education employees across the globe. It is the world's largest federation of unions and associations, representing thirty million education employees in about four hundred organisations in one hundred and seventy countries and territories, across the globe. Education International unites teachers and education employees.



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Foreword

The Future of Work is not just making the headlines - it has become an issue of increasing importance for students, teachers and the whole of society. While there is always an element of anticipatory anxiety when facing the future there has also been real concern about the arrival of Artificial Intelligence, its potential to disrupt the labour market and changing skills requirements in the workplace more generally.

This led Education International (EI) at its 8th World Congress in Bangkok 2019 to consider two resolutions, one on the Future of the Teaching Profession and one on the relationship between Information and Communications Technology, Teacher Policy and Student Learning. The former had a strong focus on the impact of Artificial Intelligence on education and the need for a human centred future including equitable access to future jobs. The latter acknowledged these developments and called for an update on EI's ICT guidelines and for teachers to have more of a say over which technologies they use.

The ILO in its Work for a Brighter Future showed that they too are concerned about developing a better society. They advocate for building human capabilities and making lifelong learning a reality for all. The future must include just transitions and opportunities for all people to grow, not only in their learning, but also in their ability to be productive, engaged and active citizens.

This report on EI's survey about the Future of Work in Education lays out a clear landscape of the problems and opportunities we will face. While educational technology clearly has the potential to save teachers time doing mundane tasks and it is important to recognise that education would have ground to a complete halt during the pandemic without digital technologies connecting teacher and students, EdTech clearly, like Janus, has two faces.

It is also an extremely profitable market growing at 16% and is estimated to reach over \$400 billion by 2025, according to HolonIQ¹. Data and privacy are particular concerns for teachers as EdTech giants mine our clicks for profit. This is explored in some detail in this report with a particular emphasis on the need for unions to get involved in data governance.

The survey responses clearly point out that member organisations are positive about what digital technologies can offer for educators, but access is inequitable. Richer schools in urban areas have better access and regional differences are significant. The pace at which education systems are turning to digital technologies is not matched by an increase in continuous professional learning and development.

¹ <https://www.holoniq.com/notes/global-education-technology-market-to-reach-404b-by-2025/>

Education unions are also rarely consulted about the digital technologies teachers use. This has to change if improving teaching and learning is the goal. It is possible for teachers to retain their professional autonomy, make informed choices about which technologies they use and when, and for the learning experience to be improved for everyone. This will not happen by accident and requires governments to do more to involve teachers' representatives in the formation of policy related to educational technologies.

As education unions we need to grow our expertise so we can better predict the impact of technological innovations on teachers and be prepared to take action as necessary. This has never been clearer than it is now, with the impact of Covid-19 on education. Unions must be equipped to respond to this rapid change with a proactive agenda for digital technology so that when our demands for consultation are met, we can engage effectively. Education unions need to take the lead ensuring the tech chosen and used has clear benefits for students and teachers.

Education International is firmly committed to working with member organisations to achieve positive change. Our Future of Work in Education reference group, who provided crucial guidance on this report, has gathered leading academics and union leaders from around the world to work out a strategy for change. Our members are engaged and ready to act to ensure the future of work in education is human first.



David Edwards
General Secretary
Education International

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Introduction

EdTech – education technology – is a fast-growing industry. Whilst a recent COVID-19 UNICEF report reveals that at least 463 million students have been cut off from education as they have no means to access remote schooling or remote schooling cannot be offered², the global EdTech market size is expected to reach USD 89.1 billion by the end of 2020 – up from 76.4 billion in 2019. With an annual growth rate prediction of 18%, by 2027 the market size is anticipated to reach USD 285.2 billion³. Spurred on by school closures as COVID-19 has ripped through our societies, online document collaboration systems, collaborative virtual whiteboards, systems to monitor learners’ involvement in the class, online meeting spaces, educator–parent connection tools, mind mapping cooperation, learner assessment systems and much, much, more are on offer⁴. Personalised learning systems that predict learning needs to tailor education to the unique learning needs of individual students is at the centre of these education technologies’ promise. Using big data, learning analytics and adaptive learning systems, personalised systems are considered to hold the potential to fundamentally adapt education to the 21st -century (Roberts-Mahoney, Means & Garrison 2016⁵).

Some of these tools are not entirely new and have been gradually introduced into the education sector. Others are⁶. Common throughout them is the use of oftentimes sophisticated algorithms, data extraction and data analyses. All of them serve the purpose to commercialise education.

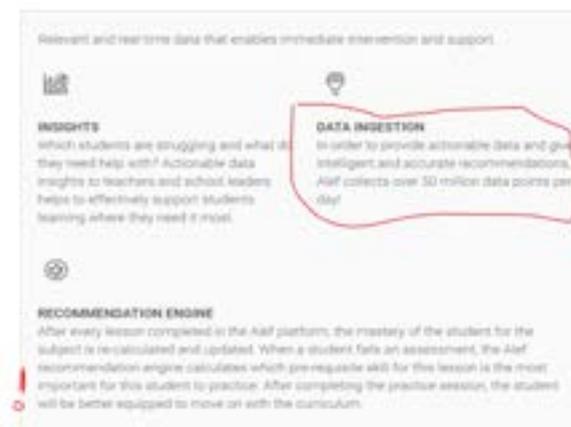


Figure 1. From ALEF Education (<https://www.alefeducation.com/>) with authors’ scribbles

2 UNICEF, “COVID-19: Are children able to continue learning during school closures,” New York, 2020, https://data.unicef.org/wp-content/uploads/2020/08/COVID-19-Remote-Learning-Factsheet_English_2020.pdf
 3 <https://www.prnewswire.com/news-releases/education-technology-market-size-worth-285-2-billion-by-2027-grand-view-research-inc-301095941.html>
 4 A September 14 2020 Google search for “EdTech 2020” revealed 6’480’000 results in just 0.48 seconds
 5 Roberts-Mahoney, H, Means, AJ & Garrison, MJ (2016) “Netflixing human capital development: Personalized learning technology and the corporatization of K-12 education”. *Journal of Education Policy*, 31(4), pp. 405-420.
 6 https://issuu.com/educationinternational/docs/coor-124_wetheeducators-eng

Figure 1 shows an example of the data analyses on offer by [ALEF Education](#), a global education technology company based in Abu Dhabi, with the aim of making learning personalized to the individual (with my scribbles on top). Other companies, such as [HolonIQ](#), have been created to help developers of EdTech find the best, most promising markets. Data is key.

But where does this leave the human rights and privacy rights of educators and learners alike? Who has the responsibility to check whether these tools are exacerbating or bridging inequalities? Are they reaching out to rich areas or poor, urban environments or rural? Are educators with their wealth of knowledge, pedagogy and emotions involved in the assessment of these technologies and their impact on learners? Will educators' jobs change? Become more intensified, demanding?

Digital technologies are not born evil. They are not born good either. It is up to those designing, deploying, and governing them to ensure they are put to a fair, inclusive use.

The survey conducted by Education International in June, July and August of 2020 aims to shed light on these key issues.

Survey aim & structure

This survey has three overall aims:

1. To understand the extent of technological permeation into education and the impact on teachers and education support personnel (ESP)s' work;
2. Take stock of work done by EI member organisations related to digital technologies in education; and
3. Develop an evidence base to guide EI's work and advocacy on this issue.

The survey results and conclusions drawn will feed into the global debate as international organisations such as UNESCO, ILO and OECD develop positions on the topic. It is also timely as the COVID-19 pandemic has put the use of technologies at the top of the education policy agenda across the world.

The survey has eight sections:

1. The impact of COVID-19
2. Access to digital tools
3. Digital competencies, training and support
4. Professional leadership and autonomy
5. Wellbeing
6. Governance of digital technologies
7. Data driven/artificial intelligence systems
8. Further developing EI's work on digital technologies

Combined these sections aim to give Education International (EI) and its member organisations an understanding of the penetration of digital technologies into the educational sector, the digital readiness of teachers and education support personnel (ESP) as supported by training and other means, how said technologies are influencing teachers' and ESPs' autonomy, whether digital divides can be identified across a number of dimensions, how digital technologies are affecting the wellbeing of workers, and what influence teachers and ESP have over the governance of these technologies. These insights will inform EI's ongoing and future work on "EdTech" - and will help to identify pressing areas of needed activity.

Method and Response Overview

The survey was sent to all of EI's member organisations, numbering 384 organisations in 178 countries and territories. The survey was disseminated in English, French and Spanish. Member organisations had 3 months to respond to the survey. A [Survey Guide](#) also in [French](#) and [Spanish](#) accompanied the survey

in which the aim and the structure of the survey were clearly explained together with a glossary of key terms.

The survey consists of 42 questions, one being an overview of contact persons and therefore disregarded in the analysis below. Respondents spent on average 58 minutes on the survey.

116 responses were received, of which 96 were complete, 14 partially complete and 6 blanks.

Member organisations from across 94 countries responded to the survey.

The sections and analyses below reflect the responses on an aggregated global scale. Regional differences will be highlighted where relevant.

About the respondents

As can be seen from the figure below, responses were received from all five EI regions. Forty-six percent (46%) of EI member organisations represent the public sector only, whilst 49% represent mostly the public sector. There is a fine distribution of sector representation from early childhood education to higher education and ESP with a majority (90 and 89% respectively) of respondents representing primary and secondary education workers.

Geographical spread

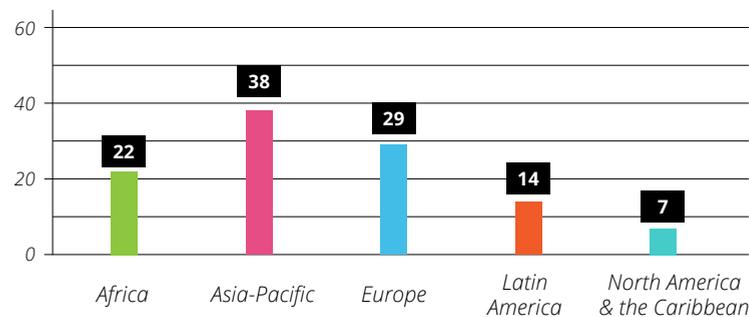


Figure 2. Geographical spread of respondents

Sector of Activity

Answer Choices	Responses	Nr of responses
The public sector	45.5%	50
The private sector	2.7%	3
Both (mostly public sector)	49.1%	54
Both (mostly private sector)	2.7%	3
	Answered	110

Table 1. Sector of Activity of Member Organisations

Sectoral representation

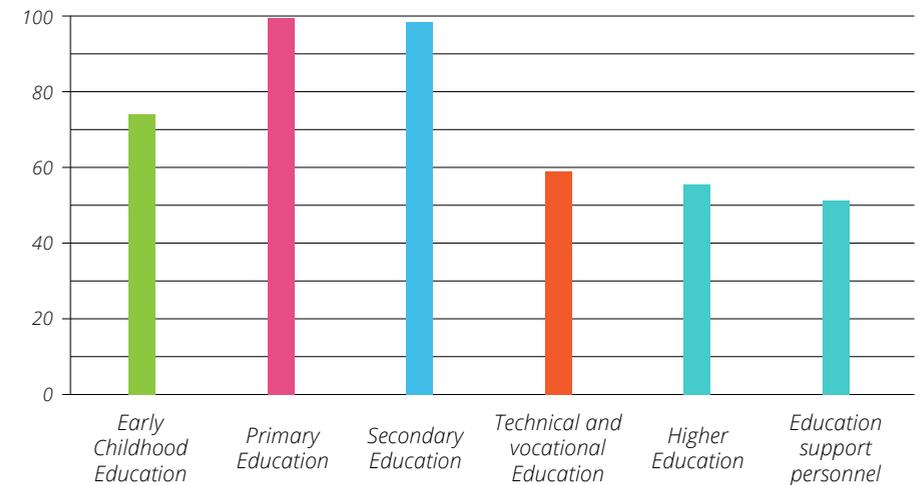


Figure 3. Sectors represented by respondents

The impact of COVID-19 (Qs 6-9)

Realising that COVID-19 has already had a significant impact on the education sector as many schools across the world were closed and teachers were asked to provide lessons remotely, the survey started off with key questions related to COVID-19.

Unsurprisingly, new digital technologies have been introduced into a vast majority of education systems across all regions.

Q6: Have new digital technologies been introduced in your education system due to COVID-19 school closures?

Answer Choices	Responses	Nr of responses
Many	31%	34
Some	44%	47
Few	22%	24
No	3%	3
Answered		108

Table 2. Percentage introduction of digital technologies due to COVID-19 school closures

There are some regional variations in the extent to which new technologies have been introduced as shown below:

Regional responses to Q6: Have new digital technologies been introduced in your education system due to COVID-19 school closures?

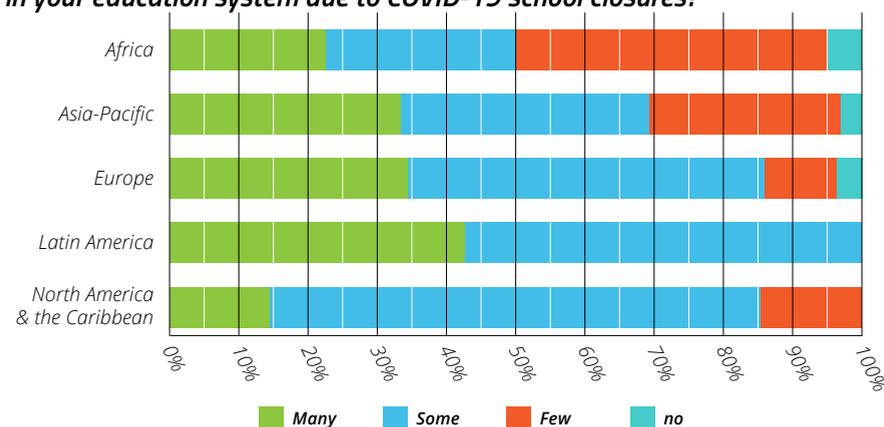


Figure 4. Regional comparison of whether digital technologies have been introduced due to COVID-19

Q7: Was your union consulted on the introduction of these digital technologies?

On a global, aggregate level the responses to the degree of consultation look as follows, where 45% of respondents answered they have not been consulted at all.

Answer Choices	Responses	Nr of responses
Consulted on all aspects	1%	1
Consulted on many aspects	25%	27
Consulted on few aspects	29%	31
Not consulted at all	45%	48
Answered		107

Table 3. Global aggregate of degree of consultation

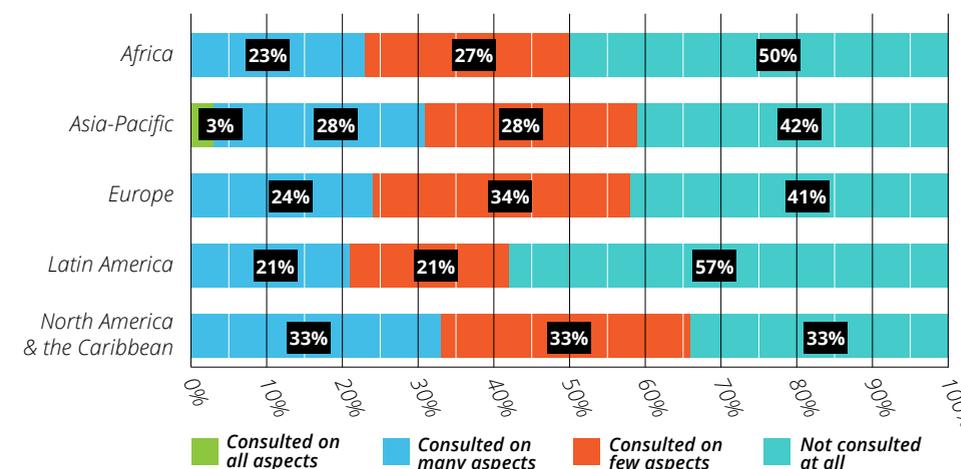


Figure 5. Degree of consultation by region

Looking at the regional breakdown, we can see that in North America and the Caribbean the percentage of "not consulted at all" answers was significantly lower than in all other regions. Only one union out of all respondents stated they had been consulted on all aspects.

Q8: Please indicate what you expect to happen to these new technologies when education institutions open?

To this question respondents seemed to be divided. Thirty-five (35) respondents equalling 33% believed only a few new technologies would remain in use when education institutions reopened. Whilst 70, equalling 67%, believed that all or most will remain. The differences could be due to a number of issues, not least what type of technology has been introduced. For example, online meeting tools such as Teams or Zoom, will naturally be used less when schools reopen for face

to face classes, whilst other technologies such as digital educator assessment tools or digital whiteboards might be permanently integrated into education institutions.

Answer Choices	Responses	Nr of responses
They will remain in the education system for the long term	27%	28
Most will remain, a few will stop being used	40%	42
A few will remain, most will stop being used	30%	32
They will stop being used	3%	3
	Answered	105

Table 4. Global responses to whether technologies will remain when education institutions reopen

Q9: In general, what is your union’s view on how COVID-19 school closures have impacted the use of digital technologies in education?

The majority of respondents see a positive correlation between COVID-19 and the use of digital technologies.

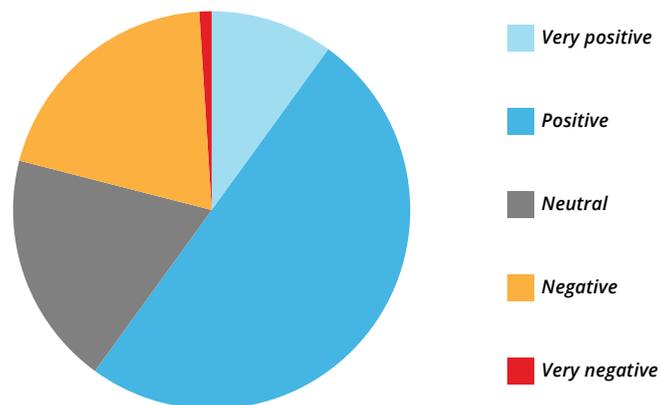


Figure 6. Global aggregate responses on the impact of school closures on the use of digital technologies

Answer Choices	% Responses	Nr of responses
Very positive	10%	11
Positive	50%	54
Neutral	19%	20
Negative	20%	21
Very negative	1%	1
	Answered	107
	Skipped	3

Table 5. Global aggregate for member organisations’ view on how COVID-19 school closures have impacted the use of digital technologies in education

As can be seen in the table above, 20% of the respondents claim that COVID-19 school closures have had a negative impact on the use of digital technologies in education. However, this question can be understood in two ways: The first as a correlation (school closure leads to more or less technology use), the second as a value judgement, i.e. whether the school closures and use of digital technologies is perceived as positive or negative. This is not least a wording issue as the responses were scaled on a “very positive” to “very negative” continuum.

Section summary

Across the questions, it is clear that there has been an increase in the use of digital technologies in education since the pandemic, with some regional differences. However, consultation with the unions around the introduction of these new tools has been very low.

Access to Technology (Qs 10-17)

From this section on, respondents were asked to base their answers on general trends, rather than solely COVID-19 spurred digital changes. The questions below relate to various groups of teachers and ESP's access to technology. Where relevant, regional differences will be highlighted.

Q10: Do educators usually have access to the internet in their workplaces (schools and education institutions)?

This question focusses on three different potential divides in relation to access to the internet. Namely, between males and females; between urban and rural areas; and between richer and poorer neighbourhoods.

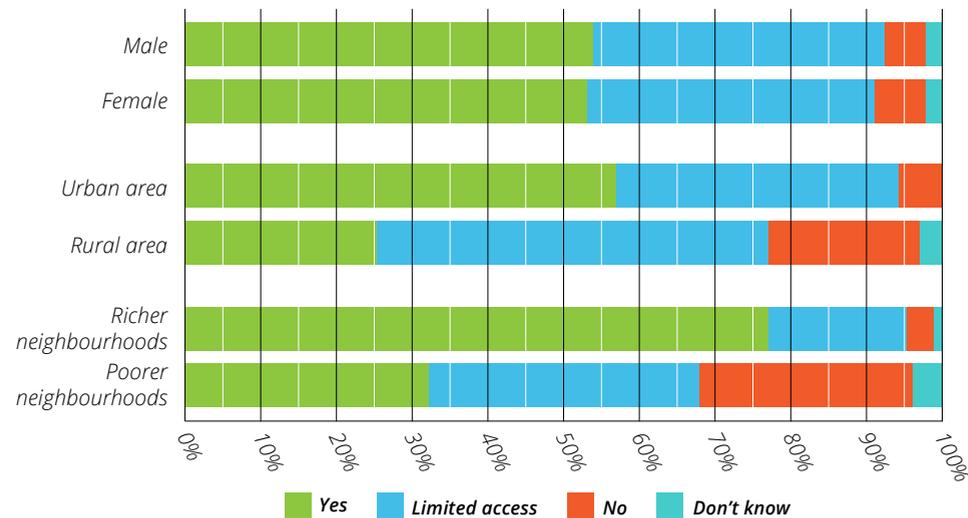


Figure 7. Global responses for access to the internet at work

On a global aggregate level there is a 1% difference between male and female educators' access to the internet. However, on the urban/rural divide as well as the rich area/poor area divide there are substantial differences. Urban and richer areas have much better access to the internet. The regional responses to these potential divides reveal a greater difference and are shown below for, firstly the urban/rural areas and thereafter for the richer area/poorer areas.

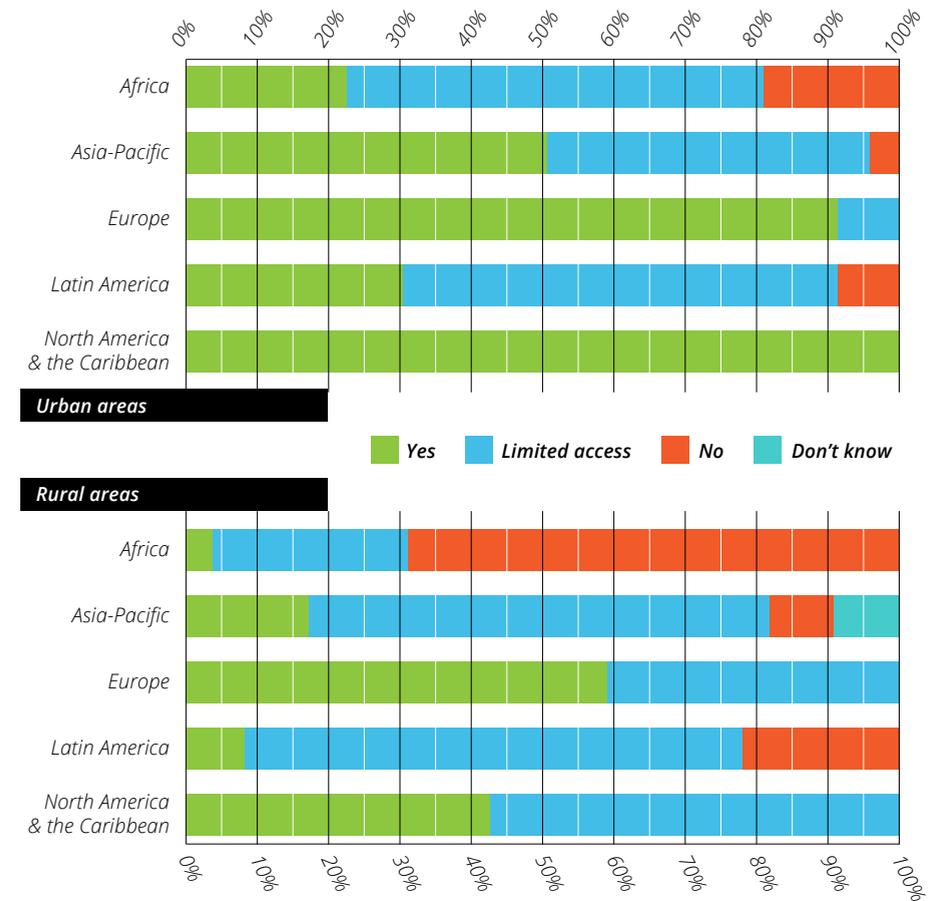


Figure 8. Regional responses of access per urban/rural geographies

Unpacking the urban/rural divides per region allows us to additionally see global geographical divides. With an eye on the need to control for vast inter-regional differences, we can see the Global North vs. Global South digital divide clearly portrayed in the above. These results corroborate existing evidence which finds that 38% of the world's population have no internet access - the majority of whom are in the Global South.⁷

If we now look at the regional responses for whether educators in rich/poor neighbourhoods usually have access to the internet in their workplaces, we once more see striking differences between the regions. Whereas 50% of educators in richer neighbourhoods in Africa have full internet access and a further 41% have limited access, zero percent have full access and only 27% have limited access in the poorer areas. This trend is replicated across all regions. However, in general, far more educators have access to the internet in Europe and North America and the Caribbean respectively than elsewhere.

7 <https://www.internetworldstats.com/stats.htm>

Figure 9. Regional breakdown of access in richer neighbourhoods

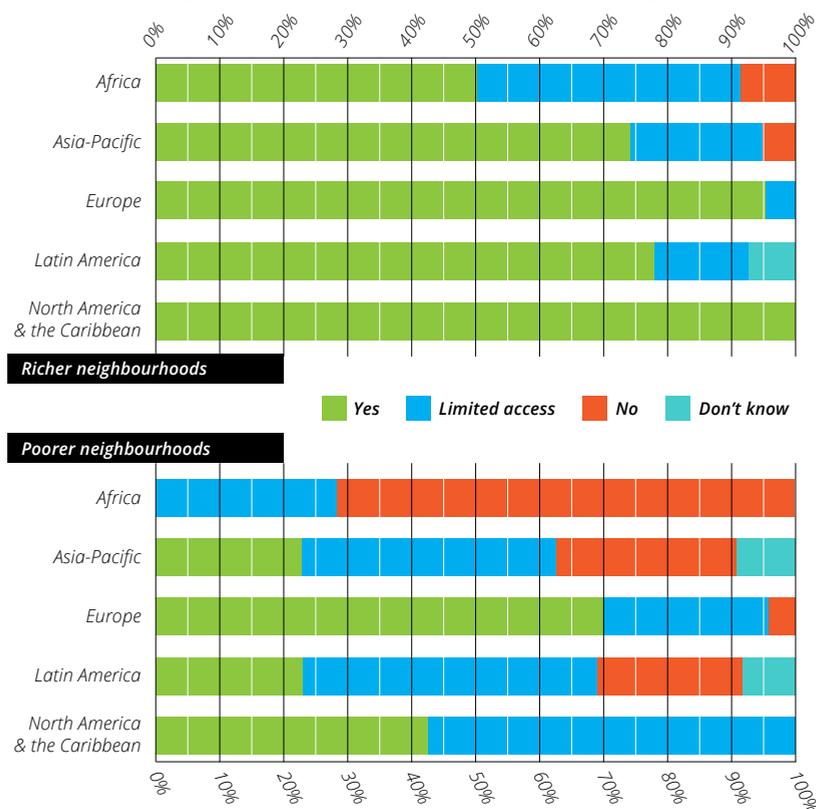


Figure 10. Regional breakdown of access in poorer neighbourhoods

Q11: In general, how digitalised are the administrative systems in your schools and education institutions?

Table 6 below shows the degree of digitalisation in education institutions' administrative systems on a global scale. Here 52% of administrative systems are not digitalised at all or partly so.

Answer Choices	% Responses	Nr of responses
Not at all	5%	5
Partly digitalised	47%	49
Mostly digitalised	34%	36
Very digitalised	14%	15
Answered		105
Skipped		5

Table 6. Global aggregate for how digitalised the administrative systems in schools and education institutions are

The following table shows the degree of digitalisation of administrative systems per region. They reveal the lowest degree of digitalisation of said systems is found in Africa (95% are not at all and partly digitalised) and the highest in Europe (86% are mostly and very digitalised).

Answer choices	Not at all	Partly	Mostly	Very
Africa	18%	77%	5%	0%
Asia-Pacific	0%	60%	31%	9%
Europe	0%	14%	50%	36%
Latin America	8%	38%	54%	0%
North America and the Caribbean	0%	29%	43%	29%
Total	5%	47%	34%	14%

Table 7. Degree of digitalisation of administrative systems per region

Q12: In general, to what extent are digital technologies used in teaching and learning in your education system?

Question 12 is concerned with the general use of digital technologies in teaching and learning. As is evident from the responses, the extent of use is higher in the so-called Global North. Whilst 23% and 6% of education systems are not digitalised at all in Africa and Asia-Pacific, 39% and 43% of European and North American and the Caribbean are mostly digitalised with 4% in Europe very digitalised.

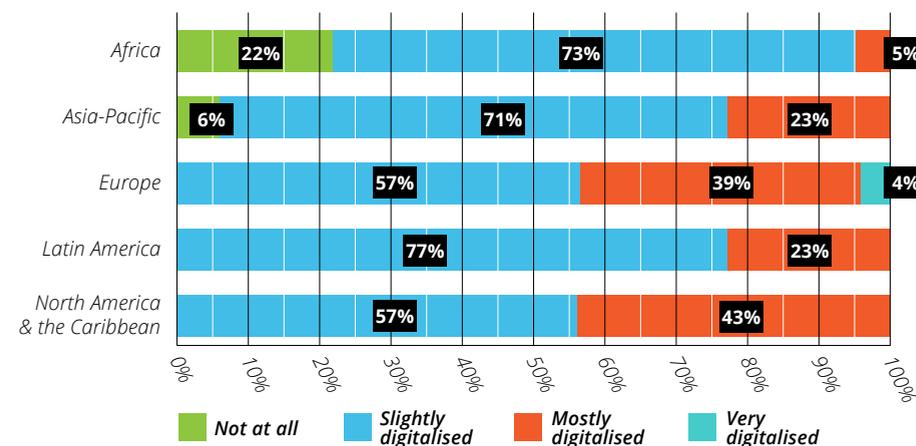


Figure 11. Regional breakdown of use of digital technologies in teaching and learning

Q13: Do educators usually have access to a computer in their workplaces (schools and education institutions)?

The results on this question resemble almost to the point the responses to question 10 above on whether educators usually have access to the internet at their workplace. As in question 10, on a global aggregate, we see no gender divide, but a quite significant urban/rural and rich/poorer neighbourhood divide.

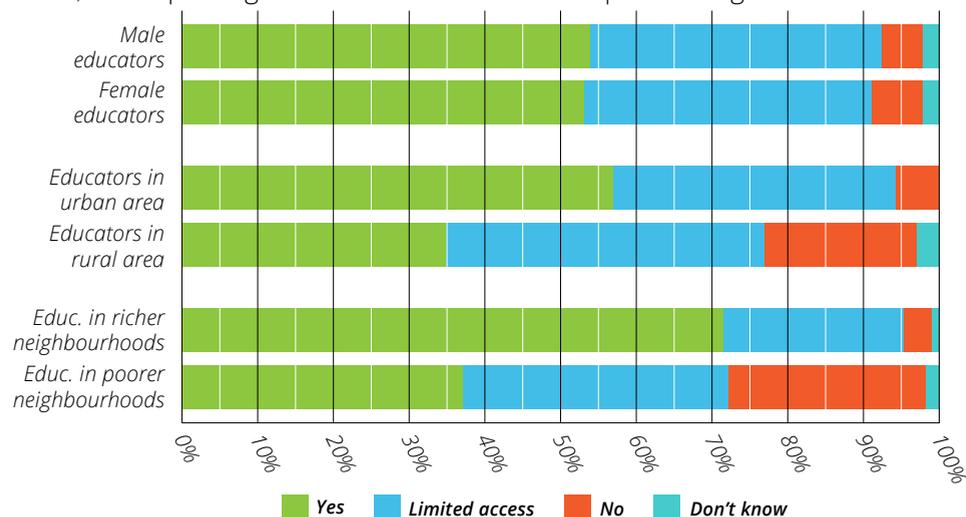


Figure 12. Global aggregate on divides in access to a computer at work

Q14: Is there a difference in the degree of digitalisation between public and private schools and institutions?

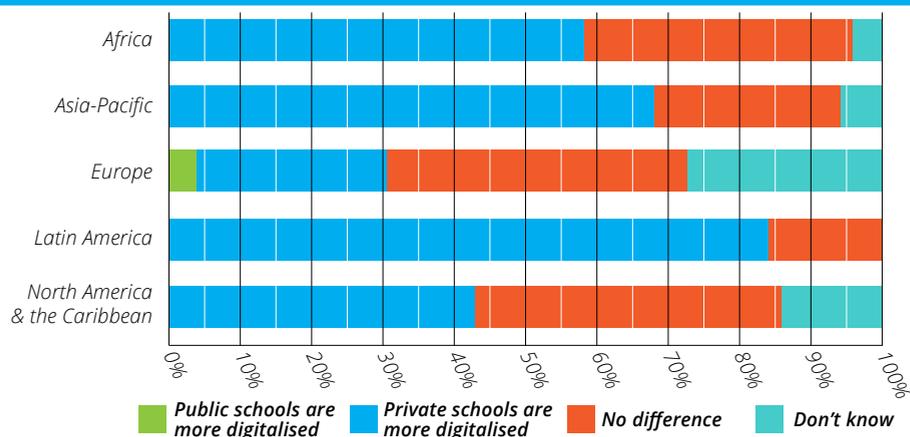


Figure 13. Regional breakdown of degree of digitalisation between public and private schools

Question 14 has offered quite diverse responses across and within the regions. In most, except North America and the Caribbean, respondents stated that

private schools are more digitalised than public. However, the respondents in Europe and North America and the Caribbean were split in their responses. In both regions, there were almost equal percentages of respondents suggesting that the private schools and institutions are more digitalised as there were respondents who claimed that there is no difference.

Q15: Do female educators have the same access to digital technologies (for teaching) as male educators?

Question 15 is concerned with examining whether a gender divide exists in relation to the access that educators have to digital technologies. Between 68% and 100% of responses indicate that men and women have equal access. However, these figures must be analysed with caution as the percentage of respondents who could not answer this question ranges between 8% and 23%, bar in Europe who responded that men and women have 100% equal access.

Region	Yes	Female have more	Men have more	Don't know
Africa	68%	0%	9%	23%
Asia-Pacific	86%	6%	0%	9%
Europe	100%	0%	0%	0%
Latin America	92%	0%	0%	8%
North America and the Caribbean	86%	0%	0%	14%
Total	87%	2%	2%	10%

Table 8. Regional breakdown for whether female educators have the same access to digital technologies (for teaching) as male educators

Q16: Do the following groups of educators have less access to digital technologies (for teaching) than the "majority" group?

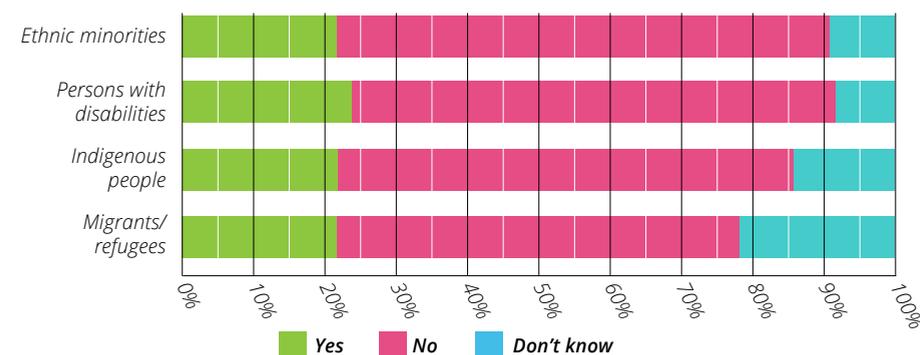


Figure 14. Global aggregate of various groups' access to digital technology relative to majority group

In this question respondents were asked whether 4 minority groups had less access to digital technologies than the “majority” group. The wording here is significant. It does not define who is the majority, leaving this open to national particularities

As we can see, on a global, aggregated scale the vast majority responded that minority groups had the same access. However, and interestingly, across all 4 minority groups, between 22-24% of responses confirmed an access divide.

Q17: Which of the following digital technologies do educators commonly use to support their teaching? (in the classroom, with students or to collaborate with other educators)

The last question in the series on Access to Technology has to do with the actual digital technologies that are used in teaching sessions. Computers/laptops/tablets followed by mobile phones were the most used.

Respondents replied under “other” the following: TV, Radio, Projectors, PowerSchool, Zoom, Teams, WebEx, Visma, and indeed the missing option, none at all.

Answer Choices	% Responses	Nr of responses
Computer/laptop/tablet	87%	88
Interactive whiteboards	41%	41
Mobile phone	72%	73
Social media eg. Facebook, twitter etc.	45%	45
Social communication tools eg. Whatsapp, Signal, Messenger, etc.	61%	62
Learning management systems eg. virtual classrooms such as Moodle, Google classroom etc.	52%	53
Digital learning software	43%	43
Online educational resources	60%	61
Programs for video contact in real time eg. Zoom, Teams etc.	59%	60
Other (please specify)		13
	Answered	101
	Skipped	9

Table 9. Global overview of typically used digital technologies

A regional breakdown of the digital technologies commonly used looks as follows:

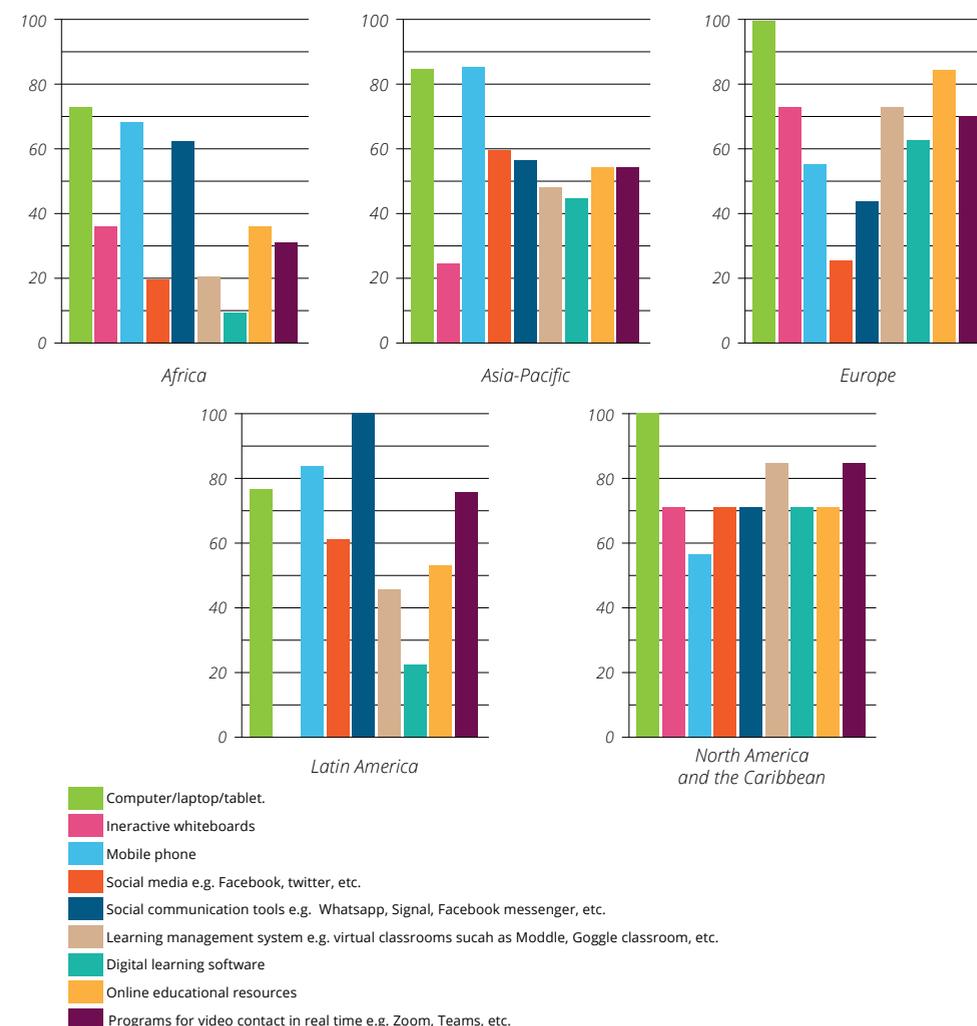


Figure 15. Regional breakdown of the digital technologies commonly used

As can be seen, the most common digital technologies are:

- Africa ‘Computer/laptop/tablet.’,
- Asia-Pacific ‘Computer/laptop/tablet’ and ‘mobile phone.’,
- Europe ‘Computer/laptop/tablet’
- Latin-America ‘Social communication tools e.g. WhatsApp, Signal, Messenger, etc.’
- North America and the Caribbean ‘Computer/laptop/tablet’

Section Summary

Education services are getting more and more digitalised across the world. This section has confirmed that digital divides exist between world regions and within countries between rich and poorer areas and between urban and rural geographies. The survey has also indicated that inequalities exist for minority groups, although there was little evidence of a gender divide.

Public investments will be necessary to avoid a vicious cycle and ever deepening digital divides. Evidence from the big tech companies' expansion into the Global South and prioritisation of education technology as an expanding market, indicate that unless public investments are made, private ones certainly will be with all of the privacy and surveillance consequences that that entails, as we shall discuss in the questions under Governance of Digital Technologies below. Q14 above on the digitalisation rate of public and private schools gives a good indication of the link between digitalisation and privatisation.

Digital Competencies, Training and Support (Qs 18-25)

Having established that digital technologies are increasingly integrated into education activities, the survey turned to questions on the digital competencies of teachers and ESPs. This section includes 5 survey questions, Q18-22. Note that the response rate to these questions was between 75 and 93 out of the total 110 responses (i.e. between 70% and 85% of all responses).

Q18: Are digital competencies included in teacher competence/ standards frameworks for (early childhood, primary, secondary and post-secondary education):

The responses indicate an interesting spread across the various categories of education for already qualified teachers, ranging from a 51% in early childhood education to an 89% in secondary education. Caution is called for on the interpretation of the data, as 31 of the 110 survey responses did not answer this question.

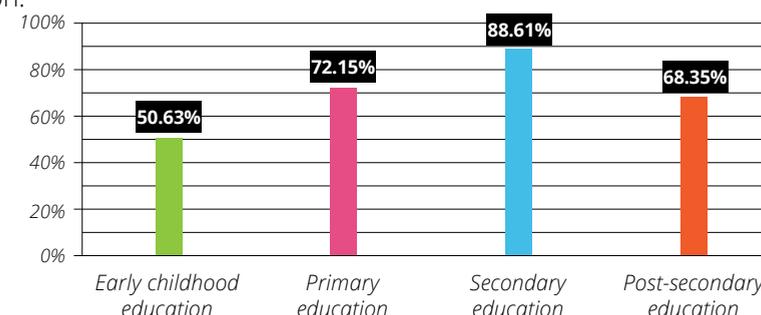


Figure 16. Global aggregate for whether digital competencies are included in teacher competence frameworks

The table below shows the same as figure 15 above, but in percentages and number of responses.

Education	% Responses	Nr of responses
Early childhood education	50.63%	40
Primary education	72.15%	57
Secondary education	88.61%	70
Post-secondary education	68.35%	54
Answered		79

Table 10. Global aggregate in percentage and numbers for whether digital competencies are included in teacher competence frameworks

Q19: Are digital competencies included in Initial Teacher Education (ITE) for (early childhood, primary and secondary education):

Responses to this question mirror the previous question almost to the decimal point with the exception that 44% of respondents stated that digital competencies were not covered in ITE.

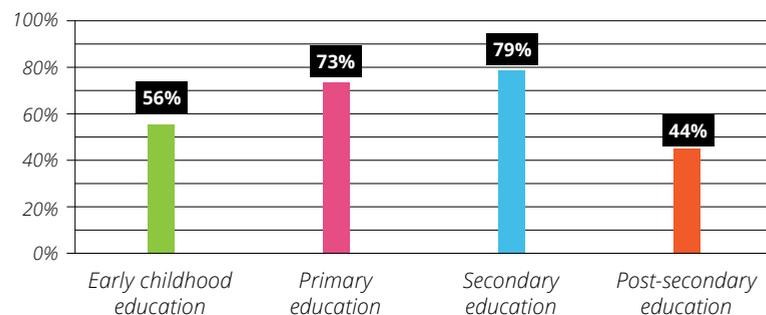


Figure 17. Global aggregate for whether digital competencies are included in Initial Teacher Education (ITE)

Unpacking the question of non-inclusion per region, we can see some regional differences. Here digital competencies in ITE are least included in Asia-Pacific followed closely by Africa and Europe.

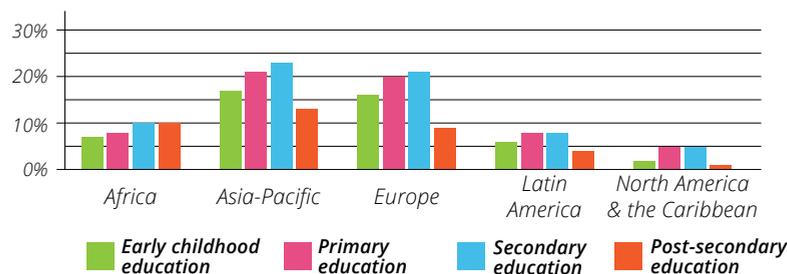


Figure 18. Regional breakdown of not included in any ITE responses

Q20: Are the following areas of digital competencies for educators covered in Initial Teacher Training (ITE)?

Using the EU's Joint Research Centre (JRC) classification of digital competencies in education⁸, question 20 unpacks the previous question and asks using whether any of the following areas of digital competencies for educators are covered in Initial Teacher Training (ITE):

1. Professional engagement: Using digital technologies for communication, collaboration and professional development.

2. Digital Resources: Selecting, creating/modifying, protecting and sharing digital resources.
3. Teaching and Learning: Managing and orchestrating the use of digital technologies in teaching and learning.
4. Assessment: Using digital technologies and strategies to enhance assessment.
5. Empowering Learners: Using digital technologies to enhance inclusion, individualisation and learners' active engagement.
6. Facilitating Learners' Digital Competence: Enabling learners to creatively and responsibly use digital technologies for information, communication, content creation, wellbeing and problem-solving.

78 out of the 110 respondents answered the question. Note respondents could check multiple areas.

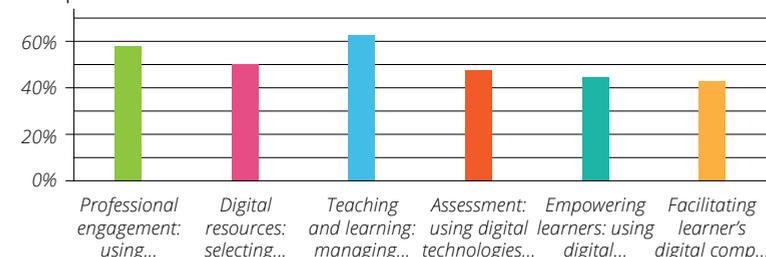


Figure 19. Global aggregate for inclusion of specific digital competencies in ITE - absolute numbers

The top 3 highest ranked areas of digital competencies that are covered by ITE are (in order from highest and down):

1. Teaching and Learning: Managing and orchestrating the use of digital technologies in teaching and learning.
2. Professional engagement: Using digital technologies for communication, collaboration and professional development
3. Digital Resources: Selecting, creating/modifying, protecting and sharing digital resources

The two lowest ranking areas were those aimed at empowering and facilitating learners.

Q21: Who mainly selects what is included in the curriculum for digital competencies taught in initial teacher training?

This question is concerned with unwrapping who decides what curriculum should be included in ITE. As is evident from the responses, this is mainly the educational authorities, including under "other" the Ministry of Education. Several

⁸ <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/european-framework-digital-competence-educators-digcompedu>

respondents commented under “*other*” that there is no digital competency curriculum at all.

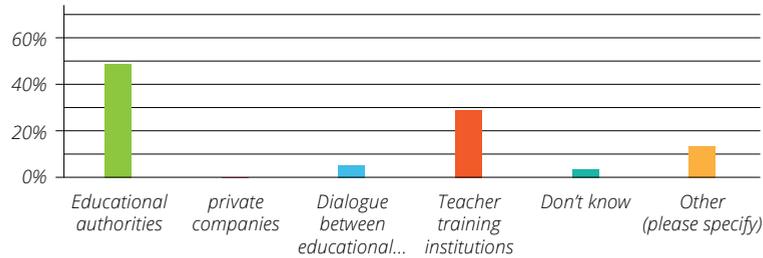


Figure 20. Global aggregate of who decides what is included in the curriculum for digital competencies in ITE

Other comments include:

“Teacher training institutions offer modules in digital technology and teachers will be required to reach a minimum level of digital competence. Interactive activities and methodologies are incorporated into many curricular areas at primary level and online videos and virtual tasks are used to supplement teaching. In Ireland, a curriculum review is currently taking place and in the draft framework there is a strong emphasis on technology and nurturing children’s capacity to be a successful ‘digital learner’. The impact of digital technology in our global world is recognised and it is imperative that our pupils are educated and enabled to navigate the online world safely and effectively.”

“In university education (which is the one we are responding to), skills for the use of digital technologies in teacher training are not included. University teachers (especially younger ones) usually have some competence in the use of digital technologies but not specifically for teaching work. These are, in general, uses linked to academic development in general, usually acquired on their own initiative. For some years now, university professors have frequently had access to some disciplinary training proposals that usually include some chapters on the didactic uses of new technologies. But they are still voluntary, occasional and of a fairly elementary level. This training is currently offered by the universities themselves and by the teachers’ unions (sometimes jointly)”. (translation from Spanish)

Q22: Are Continuing Professional Learning and Development (CPLD) opportunities for teachers and ESPs to develop digital competencies provided by the following groups?

Moving from initial training to continuing professional learning and development (CPLD), question 22 explores which groups offer CPLD and whether these are free or whether the teacher and/or ESP must pay.

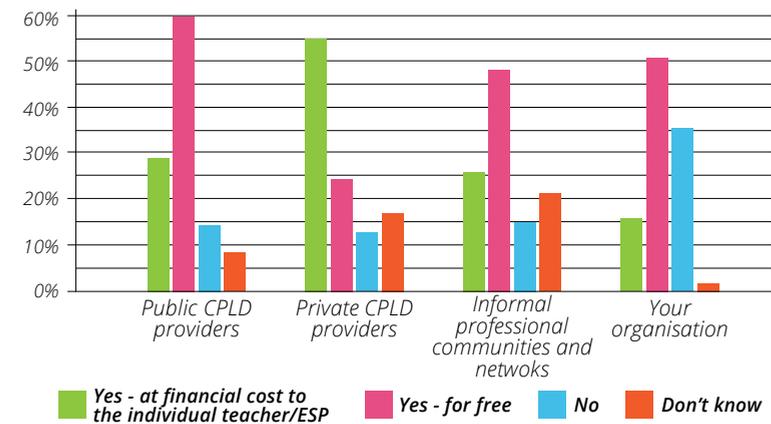


Figure 21. Global aggregate for who provides CPLD

In all options bar the private CPLD providers, the vast majority of CPLD courses come at no cost to the individual teacher/ESP. Fourteen percent (14%) of respondents say that no public CPLD opportunities exist. Fifty-seven percent (57%) of member organisations offered CPLD, whereas 36% did not.

A regional breakdown reveals two situations with significant regional differences.

The first is related to whether public CPLD providers offer courses and if so whether these come at a cost. Here we can see that in Africa the public supply of CPLD is relatively low and much lower than in the other regions.

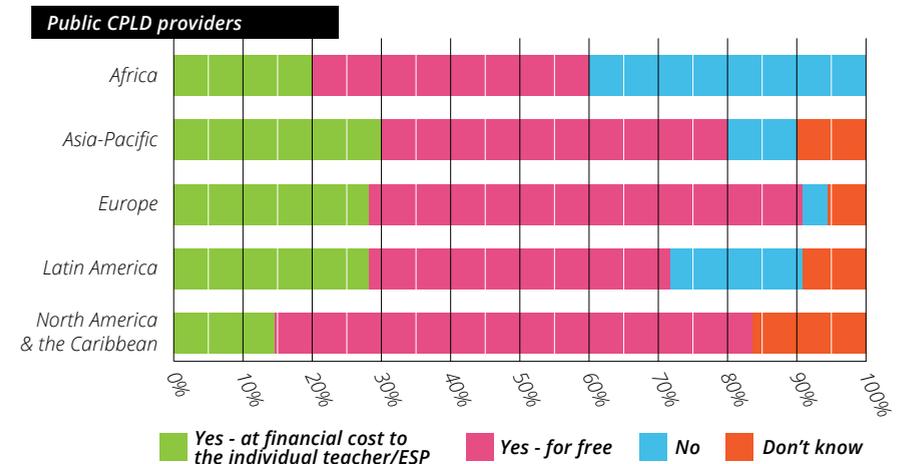


Figure 22. Regional breakdown of public CPLD and cost

The second regional difference can be found in the role the respondent’s organisation plays in offering CPLD. Here we see that the organisations in Latin America and North America and the Caribbean offer relatively more courses than organisations in the other 3 regions.

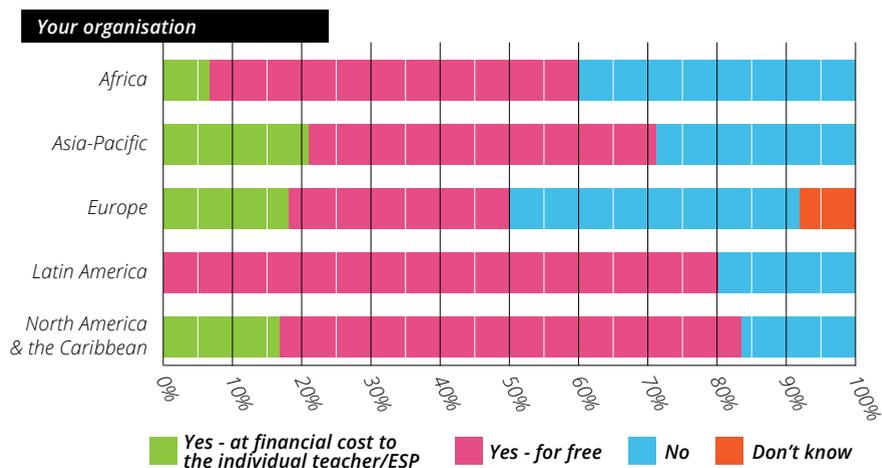


Figure 23. Regional breakdown of whether trade unions offer CPLD and at what cost

Q23: In general, would you say that teachers' training needs on digital technologies are met?

Across the board, respondents agreed that teachers' training needs were overtly not sufficiently met. There was no indication of gender discrimination.

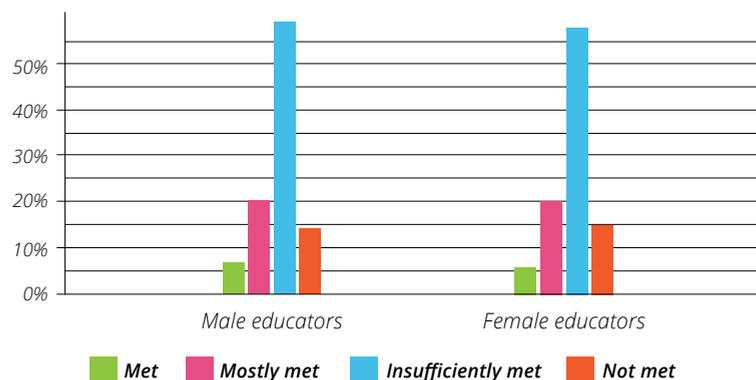


Figure 24. Global aggregate for whether male and female teachers' training needs are met

Q24: What are teachers' most urgent training needs related to digital technologies? (rank the top three)

This question asks what teacher's most urgent training needs are. Respondents were asked to rank the top three of the following digital needs.

1. Professional engagement: Using digital technologies for communication, collaboration, and professional development.

2. Digital Resources: Selecting, creating/modifying, protecting, and sharing digital resources.
3. Teaching and Learning: Managing and orchestrating the use of digital technologies in teaching and learning.
4. Assessment: Using digital technologies and strategies to enhance assessment.
5. Empowering Learners: Using digital technologies to enhance inclusion, personalisation, and learners' active engagement.
6. Facilitating Learners' Digital Competence: Enabling learners to creatively and responsibly use digital technologies for information, communication, content creation, wellbeing and problem-solving.

The table below shows the needs ranked by score (highest to lowest) revealing these three most urgent needs:

1. Teaching and Learning: Managing and orchestrating the use of digital technologies in teaching and learning.
2. Professional engagement: Using digital technologies for communication, collaboration and professional development.
3. Digital Resources: Selecting, creating/modifying, protecting and sharing digital resources.

Digital Need	Rank					
	1	2	3	4	5	6
Teaching and Learning	37%	29%	21%	4%	8%	1%
Professional engagement	35%	21%	21%	7%	13%	3%
Digital Resources	15%	32%	17%	14%	8%	15%
Facilitating Learners' Digital Competence	23%	13%	20%	11%	11%	22%
Empowering Learners	9%	16%	26%	19%	18%	12%
Assessment	3%	19%	25%	20%	15%	17%

Table 11. Teachers' most urgent training needs related to digital technologies ranked

Q25: To your knowledge, are there public or publicly funded initiatives to develop (online education platforms, online resources for teachers and online resources for students):

Question 25 is designed to give an indication of whether public or publicly funded initiatives are aimed to develop the platforms or resources listed below. All three are important elements of digitally led education. As is clear, these topics do receive public priority.

Answer Choices	% responses	Nr responses
Online education platforms	78%	66
Online resources for teachers	81%	69
Online resources for students	74%	63
	Answered	85
	Skipped	25

Table 12. Global aggregate of whether public or publicly funded initiatives exist to develop 3 distinct topics

Section Summary

This section has been concerned with digital competencies and teachers' and ESPs' access to training and institutional/network support with these competencies. What seems clear is that teachers' training needs are poorly met by the supply of courses. This can be understood as a discrepancy between the integration of digital technologies into teaching and the actual skills of the workers. COVID-19 and school closures have most certainly made that discrepancy clearer.

The regional differences in the public provision of CPLD may be an additional driver of regional digital divides. Also, the organisational capacity to, or priority of, digital competency CPLD is rather low across all regions.

A relatively large number of respondents skipped several of the questions in this section, which could indicate that respondents did not know how to answer the questions. Methodologically, an "I do not know" answer option would have been helpful.

Professional Leadership and Autonomy (Qs 26-28)

The three questions in this section relate to the impact of digital technologies on the autonomy and academic freedom of the unions' members as well as the use of said technologies in evaluating the performance of teachers.

Q26: In general, how, if at all, has the use of digital technologies in education impacted your members' professional autonomy/academic freedom?

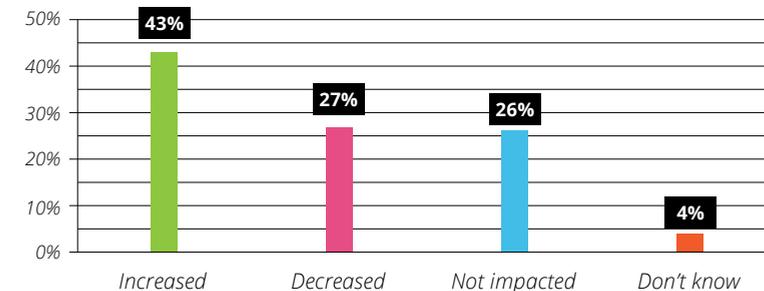


Figure 25. Global aggregate of digital technologies impact on professional autonomy/academic freedom

Forty-three percent (43%) of the 93 responses believe that digital technologies have increased members' professional autonomy and academic freedom. An almost equal share of respondents believed these technologies have no influence or a negative influence (27% and 26% respectively).

Q27: Are there instances where digital technologies have been used to assess teachers' performance?

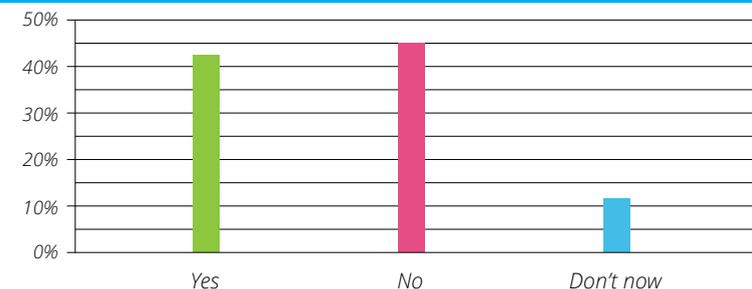


Figure 26. Global aggregate for instances where digital technologies have been used to assess teachers' performance in percent

On a global and aggregate scale, 43% of the responses confirm that teachers' performance has been assessed using digital technologies. A slightly higher percentage (45%) believes this does not occur.

Broken down to the regional level, we see quite a mixed pattern of responses with the largest share of affirmative responses coming from Asia-Pacific and North America and the Caribbean:



Figure 27. Regional breakdown of instances where digital technologies have been used to assess teachers' performance in percent

The lowest use of digital assessment tools is found in Africa and Europe.

Q28: If yes, how do teachers view these assessment systems?

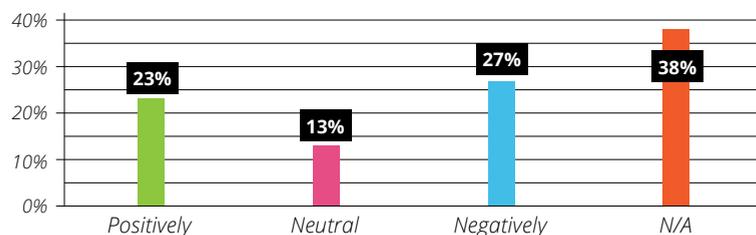


Figure 28. Global aggregate for how teachers view assessment systems in percent

Options	% responses	Nr responses
Positively	23%	16
Neutral	13%	9
Negatively	27%	19
N/A	38%	27
Answered		71

Table 13. Global aggregate for how teachers view assessment systems in absolute numbers

Question 28 follows on from the 42% 'yes' responses (equalling 40 responses) from question 27 and asks how teachers view these assessment systems. More responses to this question were received than the 42% though.

A small majority of responses perceived their use as negative.

Section Summary

This section indicates the challenges and potentials of digital technologies. Whilst a majority of respondents answer that digital technologies can increase teachers' professional autonomy and academic freedom, they are by a small margin negative towards the use of technologies in assessing their own performance.

Wellbeing (Qs 29-31)

These three questions are related to the impact of digital technologies on teachers' and ESP's wellbeing. Between 17 and 19 of respondents did not answer these 3 questions.

In the below we will combine questions 29 and 30.

Q29 and Q30:

The use of digital technologies can have negative effects on educators' well-being. What are the main concerns of your female/male members in relation to these? Please rank (1 = biggest concern 5 = less of a concern)

Female concerns (weighted average)

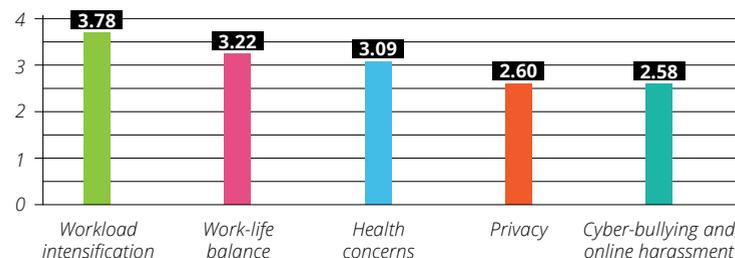


Figure 29. Global aggregate for male and female wellbeing concerns

Male concerns (weighted average)

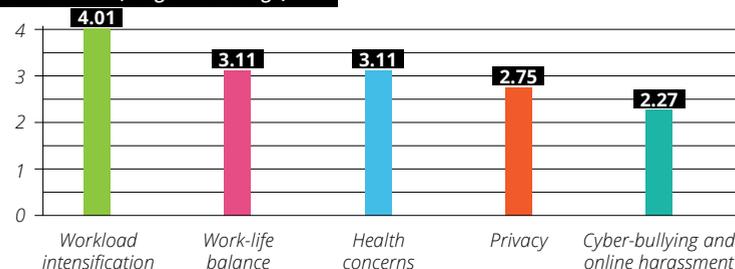


Figure 30. Global aggregate for male and male wellbeing concerns

As can be seen, the respondents perceive that men and women have more or less the same concerns. The statistical variances between their ranked concerns is insignificant to mention. Workload intensification was the largest worry for both groups by a significant margin. Respondents believe that work-life balance is of slightly greater concern for women than for men, who on the contrary are slightly more worried about their health.

Q31: Are teachers' and/or ESPs' wellbeing in relation to the use of digital technologies addressed in any of the following policy instruments? (check all that apply)

As can be seen on the figure below, teachers' and ESPs' wellbeing is not addressed by any policy instrument at all according to 32% of the responses. The most common instruments are institutional (workplace) policies and pedagogical advice or guidance. Collective agreements were the least likely instrument through which to safeguard teachers' and ESPs wellbeing in relation to the use of digital technologies.

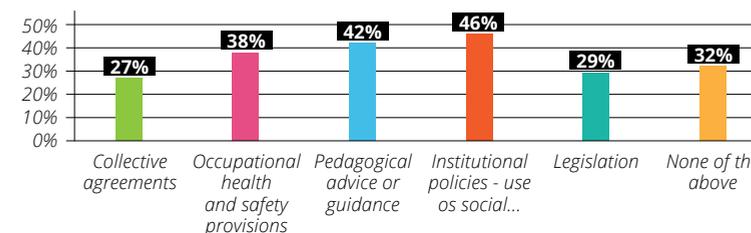


Figure 31. Global aggregate for whether wellbeing concerns are addressed in policy instruments

Section Summary

The responses in this section highlight the impact digital technologies will have on educators' wellbeing. The greatest concern is the expected increased work intensification followed by a more or less equal concern for negative health impacts caused by technostress and screen time. It is striking that 32% of the responses report that teachers' and ESPs' wellbeing is not addressed in any policy instrument, and only in 27% of collective agreements.

Governance of Digital Technologies (Qs 32-33)

This section's two questions are concerned with education authorities' consultation of unions and whether unions are involved in assessing the digital technologies already in place. In other words, this section seeks to unravel the degree of involvement of education unions in shaping digital technologies.

Q32: Are unions consulted by education authorities on what digital technologies are wanted by teachers/ESP?

On a global and aggregate level, the respondents overwhelmingly (57%) responded that they were not consulted about teachers' and ESPs' technological wants.

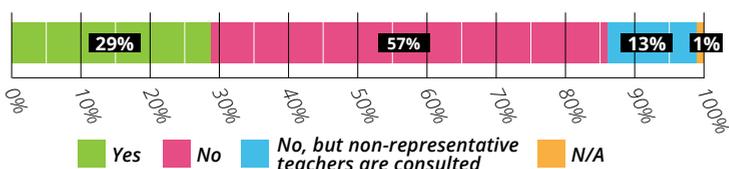


Figure 32. Global aggregate for whether unions are consulted by education authorities on what digital technologies are wanted by teachers/ESP

Unpacking this to the regional level, we can see that the consultation of non-representative teachers is larger in North America and the Caribbean (43%) than the consultation of unions (29%).

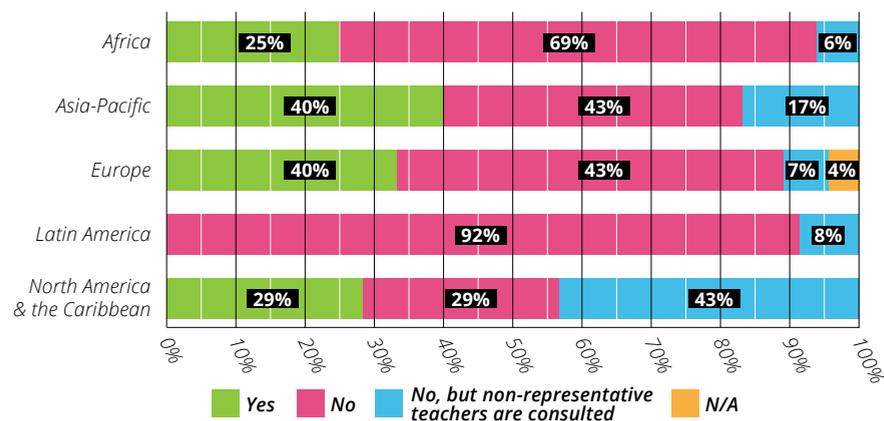


Figure 33. Regional breakdown for whether unions are consulted by education authorities on what digital technologies are wanted by teachers/ESP

Also, in Latin-America as the only region, unions are not consulted at all. Union consultation is highest in Asia-Pacific followed by Europe. Given the industrial relations system in Europe, otherwise known as the European Social Model, in which dialogue is promoted between social partners, it is somewhat surprising that only 33% of European respondents confirmed that the union has been consulted.

Q33: Are unions involved in the assessment of digital technologies (e.g. for quality, usefulness, relevance etc.)?

In asking respondents whether the unions were involved in assessing the digital technologies already being used, 74% answered no and that there are no structures or processes in place to assess the technologies. Seventeen percent (17%) of unions are involved in assessing digital technologies.

Answer Choices	% responses	Nr responses
Yes	17.39%	16
No	53.26%	49
There are no structures/ processes for assessing technologies	20.65%	19
Don't know	2.17%	2
Other (please specify)	6.52%	6
Answered		92

Table 14. Global aggregate for whether unions are involved in the assessment of digital technologies

A regional breakdown shows that roughly 15% of respondents from Europe, Latin America and North America and the Caribbean state that unions are involved in the assessment of digital technologies, whilst in Africa this percentage drops to 5%. In Asia-Pacific the percentage of union involvement in the assessment of digital technologies rises to 27%. Several unions reported other channels for assessment, hereunder:

- that the union has seats on Ministry of Education advisory groups,
- that unions are not commonly involved but that the social dialogue offers a framework for discussion on management and administrative software,
- that unions express opinions on these issues in joint associations and in advisory councils, and
- that assessment involvement very much depends on the school.

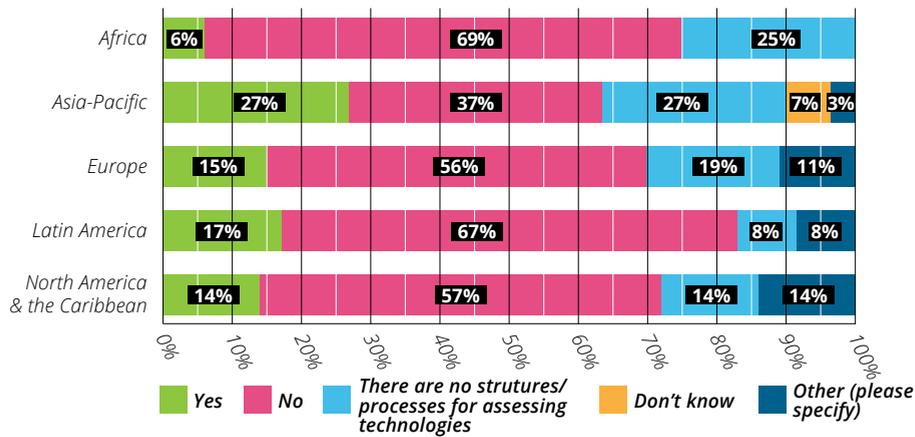


Figure 34. Regional breakdown for whether unions are involved in the assessment of digital technologies

Section Summary

This section has brought to light the relatively low level of consultation of unions by educational authorities on what, importantly, the teacher's needs are. Question 33 revealed as well that there is a lack of structures and processes for the assessment of digital technologies, which can also explain the high average level of non-involvement (53%). Combined these two questions speak of a growing need to address the lack of structures, processes but also recognition of the importance of the teachers' perspective.

Advanced Digital Technologies (Qs 34-38)

These questions all relate to more advanced digital technologies (see reference list in Survey Guides): asking about union policies, positions and preparedness, but also in which field these advanced technologies are used and how the data that they extract and generate is governed.

Q34: Are there instances where advanced technologies are in place to:

- A. Inform education system planning and management
- B. Inform human resources planning and/or management
- C. Support teachers/ESP to carry out administrative/management tasks
- D. Support/automate students' assessment and marking
- E. Support teachers to personalise student learning
- F. Assist teachers (AI-powered teaching assistants and/or voice assistant systems, such as bots)

The responses to this question speak of both a significant penetration of the listed technologies in the education sector, but also a split in the respondent's responses as to whether they are in place or not.

On a global and aggregate level, the most common advanced technologies that are in place aim to 1) Inform education system planning and management and 2) Support teachers/ESP to carry out administrative/management tasks.

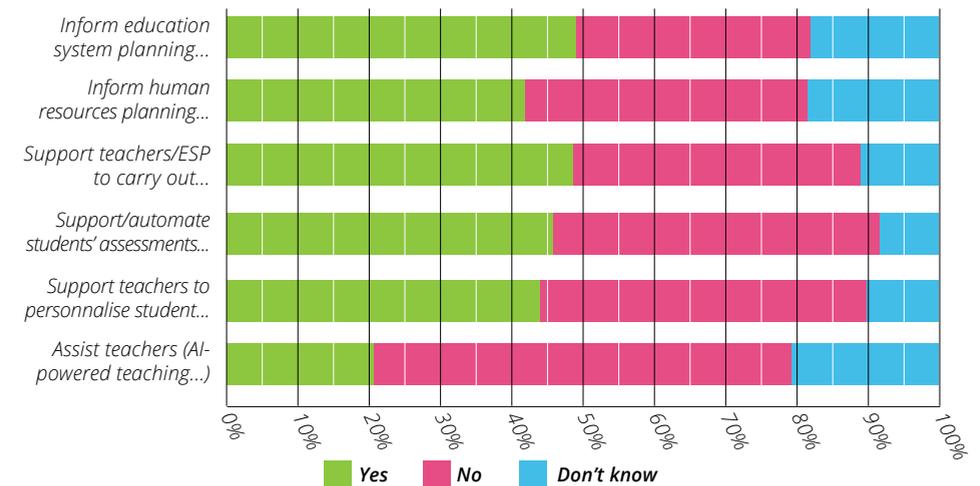


Figure 35. Global aggregate for instances where advanced technologies are used

The advanced technology that seems to be the least used are systems designed to assist teachers (AI-powered teaching assistants and/or voice assistant systems, such as bots).

Q35: How has your organisation positioned itself in relation to the use of advanced technologies in these areas:

- A. Education system planning and management
- B. Human resources planning and/or management
- C. Supporting teachers and/or ESP to carry out administrative/management tasks
- D. Supporting/automating students' assessment and marking
- E. Support teachers to personalise student learning
- F. Assisting teachers (AI-powered teaching assistants and/or voice assistant systems)

This was a complex question with multiple variables. It received 90 answers and 20 skips.

At a glance, the responses here speak of an overall optimism around relatively new and emerging technologies with the vast majority of responses being "in favour" or "mostly in favour" of the advanced technologies. There is, though, a striking exception, namely on the technologies designed to support/automate students' assessment and marking. This technology received by far the largest 'mostly against' and 'against' responses (21% in total), although these are still outweighed by the 49% 'in favour' and 'mostly in favour' responses.

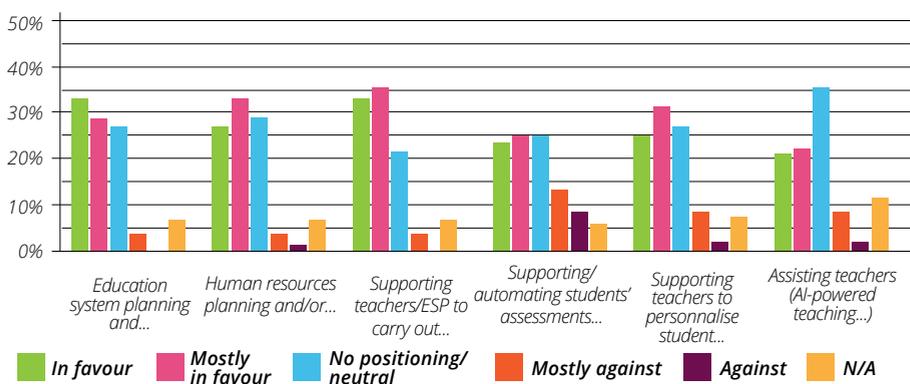


Figure 36. Global aggregate for union's positioning on the use of digital technologies

The negative responses can be related to the automated grading scandal in the UK this summer that all too clearly showed how the lack of algorithmic

governance can cause very adverse effects.⁹ Here nearly 40 per cent of students were downgraded relative to the grades predicted by teachers.¹⁰ In the UK, the complex system of estimated grades treated especially the already disadvantaged unfairly. This was not least due to the fact that a standardisation formula was applied to teacher predictions, based in part on the past performance of the school. If you were a high-achieving pupil in a low-performing school, your grades would be marked down. This in turn hit the already disadvantaged the hardest. It is not possible to conclude that there is a connection between the UK scandal and the European responses, although the European respondents were also the most negative towards these technologies.

Many respondents (27% in average across the 6 listed advanced technologies) report of a non-position from their organisation. These non-position percentages were interestingly relatively higher in Europe and North America and the Caribbean than the rest of the regions on all technologies. On average 8% of the respondents had positions that are against 4 of the technologies and North America and the Caribbean than the rest of the regions on all technologies.

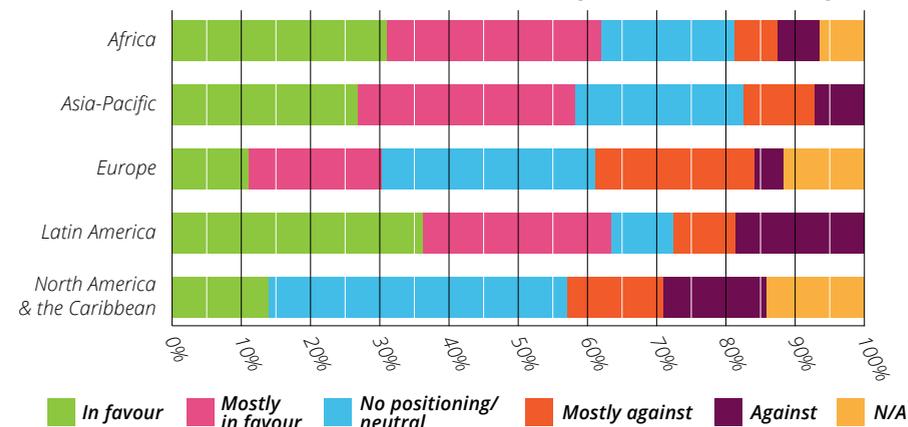


Figure 37. Regional breakdown of respondents' attitudes to supporting/automating students' assessment and marketing

Only A. Inform education system planning and management and C. Support teachers/ESP to carry out administrative/management tasks received no "against" positions. Interestingly, these two technologies are also those where unions reported the highest 'in favour' and 'mostly in favour' positions.

Q36: Are these processes/instruments in place?

- A. Publicly funded initiatives to develop Secure Data Storage
- B. Protocols to guarantee data security of educators and students

⁹ See <https://www.nytimes.com/2020/08/14/world/europe/england-a-level-results.html> for a good explanation
¹⁰ <https://www.theguardian.com/education/2020/aug/13/england-a-level-downgrades-hit-pupils-from-disadvantaged-areas-hardest>

C. Protocols to guarantee that the use of data to inform education policy decisions is transparent

This question once more split the respondents between yes and no answers.

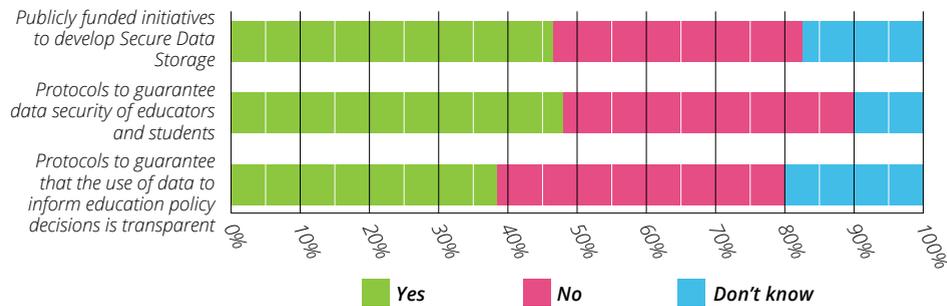


Figure 38. Global aggregate for what processes/instruments are in place

An example of the split is shown in the next figure, which is the data for European responses. Europe is chosen as most of the region is covered by the General Data Protection Regulation (the GDPR), the data protection regulation that seems to be setting a global standard across the world.¹¹ The GDPR has potentially an influence on how respondents would respond to instrument 'B': 'Protocols to guarantee data security of educators and students'.

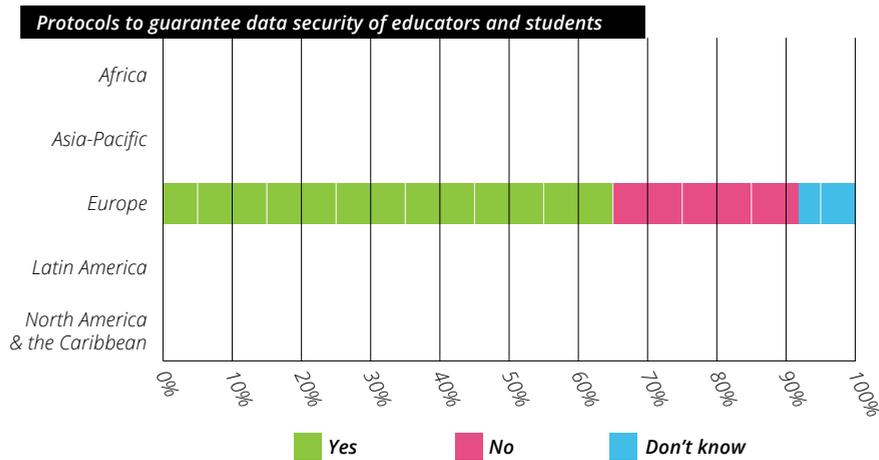


Figure 39. European responses to whether protocols to guarantee data security of educators and students are in place

Here we can see however that 27% of respondents do not think there are protocols in place in relation to the data security of educators and students. The responses could well reflect that many unions are simply not aware of the GDPR provisions and/or because respondents are thinking of school level protocols.

Q37: Please indicate who has control over the data used by advanced technologies in education

This question goes to the core of new technologies, namely to the data that is generated and/or extracted as digital technologies are used.

The vast majority (74%) responded that education authorities have control over this data. Several respondents provided additional comments, namely:

- A. Depends on if technologies are funded and provided publicly or privately; crucial: lack of transparency
- B. Governments have the control
- C. Private providers will, to some extent, have the possibility to harvest data, but are not entitled to control the data
- D. Schools

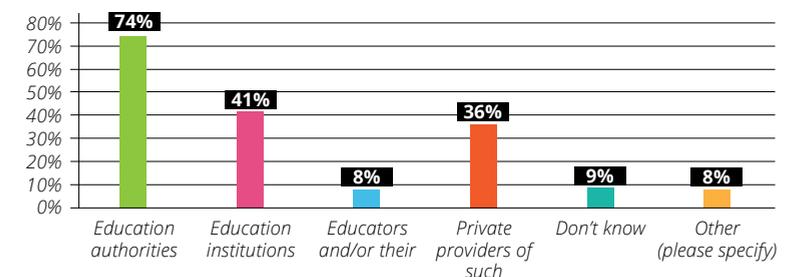


Figure 40. Global aggregate for who has control over the data used by advanced technologies

The responses that reflect that the education authorities have control over the data despite the growth in private education technology is worth looking into in more detail. Question 25 did strongly indicate that many public or publicly funded initiatives exist to develop online education platforms, online resources for teachers and/or online resources for students, which can explain why respondents answered that the education authorities have control over the data. However, with the growth in the private education tech market, it would be interesting to find out whether:

1. Governments have secured data access and control in public procurement, outsourcing, or public-private partnership contracts and arrangements
2. If so, is this a regional development, or a global development?

¹¹ <https://phys.org/news/2019-05-year-eu-gdpr-global-standard.html#:~:text=The%20EU%20has%20billed%20it,like%20Facebook%2C%20Google%20and%20Amazon>

Q38: In relation to advanced technologies and education, would you say that...:

1. Your organisation and 2. Your members are:
 - a. Very knowledgeable
 - b. Quite knowledgeable
 - c. Not knowledgeable

This question turns once more to the unions themselves and expressions of their digital knowledge as well as that of their members. Firstly, on a global, aggregated level, unions perceive themselves to be generally 'quite knowledgeable' and to the same degree as their members.

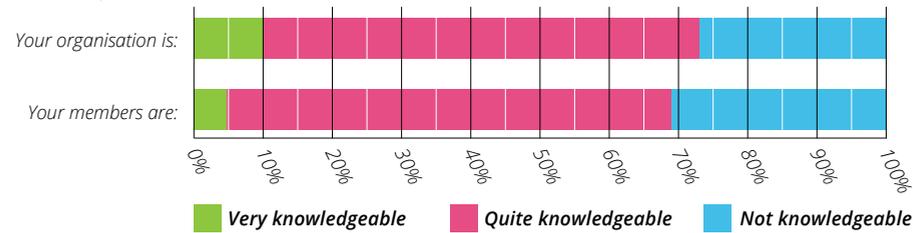


Figure 41. Global aggregate for how digitally knowledgeable respondents believe their organisation and their members respectively are

When evaluating their members' level of knowledge, the regional picture looks as follows:

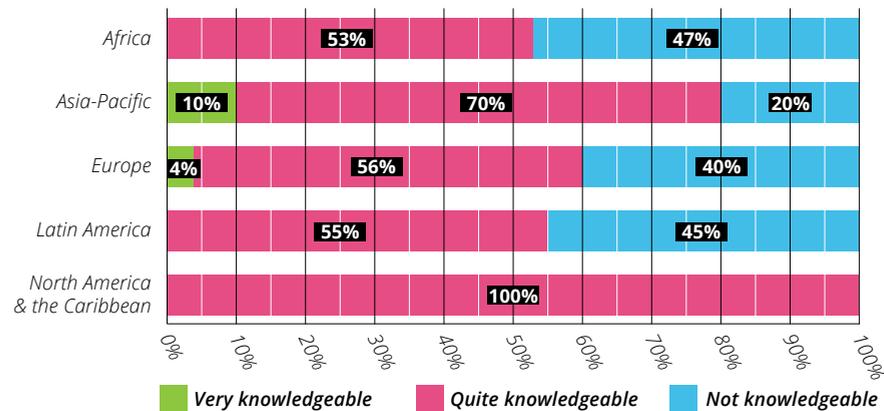


Figure 42. Regional breakdown of organisation's level of knowledge in relation to advanced technologies and education

The percentage of members belonging to the 'not knowledgeable' group ranges from 20% in Asia-Pacific, to 40% in Europe and 47% in Africa. The vast majority are deemed to be 'quite knowledgeable'.

Section Summary

In the above, two main streams of enquiry have been pursued: one on union policies, positions, and digital preparedness, and another on advanced digital technologies, their existence in the education sector and the policies governing it.

This section has offered some interesting insights. Firstly, the disagreement between respondents on the presence or not of advanced digital technologies in the education sector. This merits further enquiry. Secondly, the high proportion of unions who have positioned themselves overtly favourable to the introduction of advanced technology in the sector. These percentages stand in contrast to responses in Q29 and Q30 where respondents reported of the expected negative impacts of technology, but also to Q23 on teacher training needs not being met. It also is striking in light of the responses to the level of members' digital knowledge in this section, which for many was very low. Again, further investigation into these interrelations would be appropriate.

Further Developing EI's Work on Digital Technologies (Qs 39-41)

The last section of the survey zooms in on the actions taken by respondents in relation to digital technologies and those they wish EI to pursue. On average this section received input from 94 out of the 110 respondents.

Q39: What action has your organisation taken in relation to the following topics? (check all that apply)

This question asks respondents to select whether they have a. developed a policy, b. carried out research, c. established a dedicated structure/body, and d. not taken action on three overall themes:

1. The future of work in education
2. The use of digital technologies in education
3. The collection and use of data on learners and staff

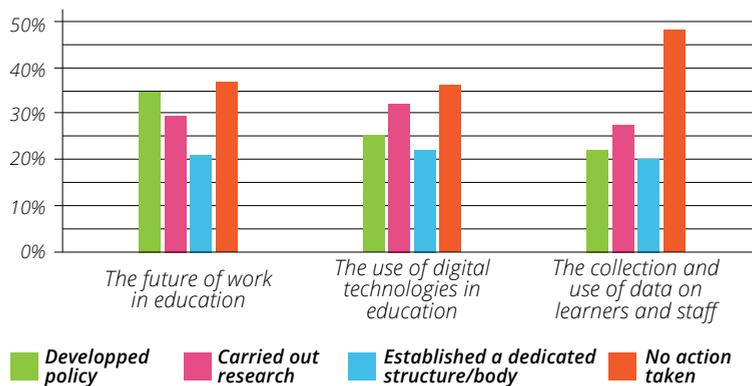


Figure 43. Global aggregate for selected union actions taken with regards digital technologies

As can be seen, between 36 and 49 % of respondents have not taken action on the three themes, and least of all on the collection and use of data on learners and staff.

The table below summarises the actions taken and shows their global average.

Topic	Developed policy	Carried out research	Established a dedicated structure/body	No action taken	Total
The future of work in education	34.74%	29.47%	22.11%	36.84%	95
The use of digital technologies in education	25.27%	32.97%	23.08%	36.26%	91
The collection and use of data on learners and staff	22.22%	26.67%	20.00%	48.89%	90
Other (please specify)					10
Average	27.41%	29.70%	21.73%	40.66%	

Topic	Developed policy	Carried out research	Established a dedicated structure/body	No action taken	Total
The use of digital technologies in education	25.27%	32.97%	23.08%	36.26%	91
The collection and use of data on learners and staff	22.22%	26.67%	20.00%	48.89%	90
Other (please specify)					10
Average	27.41%	29.70%	21.73%	40.66%	

Table 15. Global aggregate of which actions have been taken in percent

A regional breakdown shows a great deal of variance across the three topics as is shown in the figures below. Europe is the region that has developed the most policies, Asia-Pacific is the region that has carried out the most research. Africa is the region with the highest percentage of no action taken.

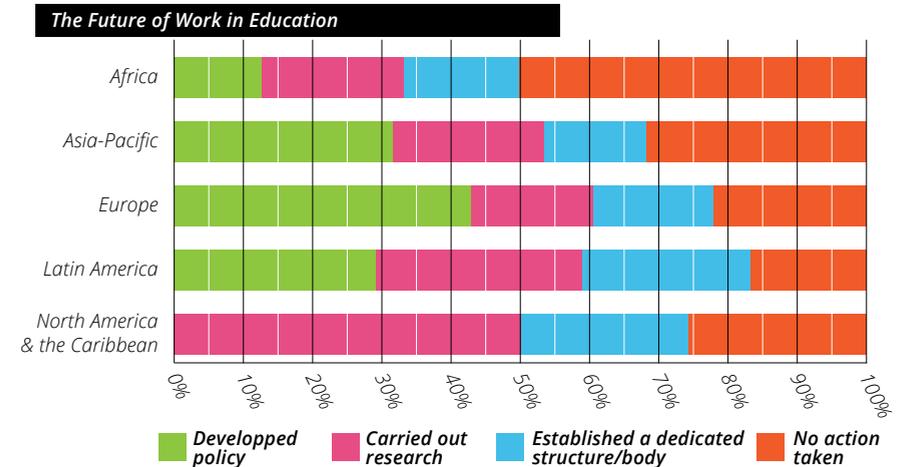


Figure 44. Activities per region for Future of Education

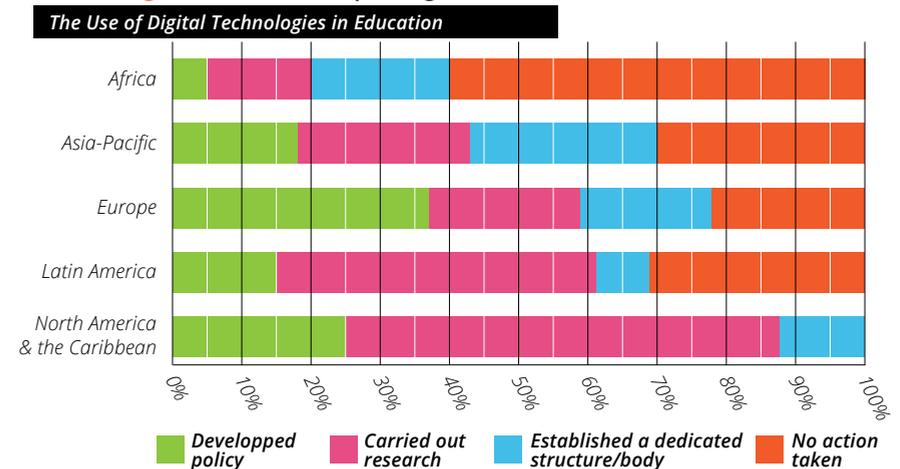
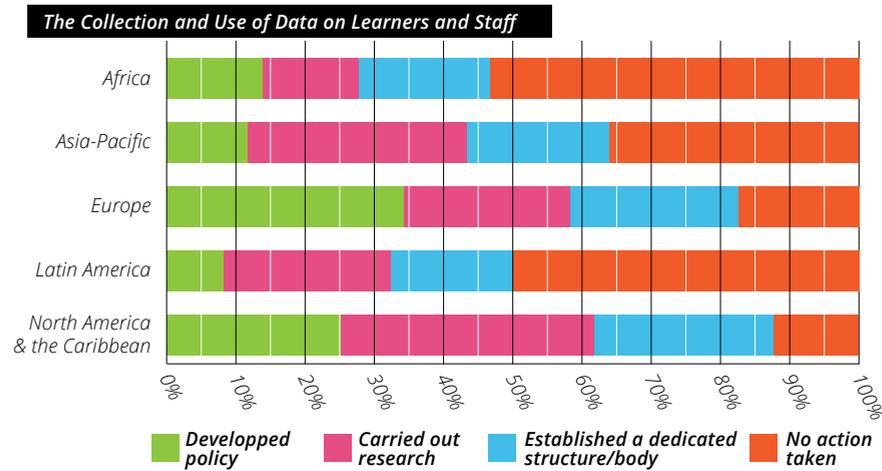


Figure 45. Activities per region for use of digital technologies in education

Figure 46. Activities per region for collection and use of data on learners and staff



It is clear from the regional breakdown that these topics receive very varied attention across EIs regions. The topic that has received the least attention is the collection and use of data on learners and staff.

Q40: Does your organisation offer courses/workshops on the governance of digital technologies in education? (for instance, training for policy dialogue on the topic)

This question is linked to the above, but also to question 38 where the percentage of members belonging to the 'not knowledgeable' group ranges from 20% in Asia-Pacific, to 40% in Europe and 47% in Africa. The vast majority were, though, deemed to be 'quite knowledgeable'. In the below on a global aggregate scale we can see that the vast majority of unions do not offer courses or workshops on the specific topic of the governance of digital technologies.

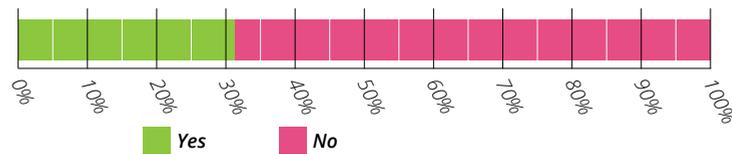


Figure 47. Percentage unions offering courses/workshops on governance of digital technologies (global aggregate)

Regionally, the breakdown is as follows:

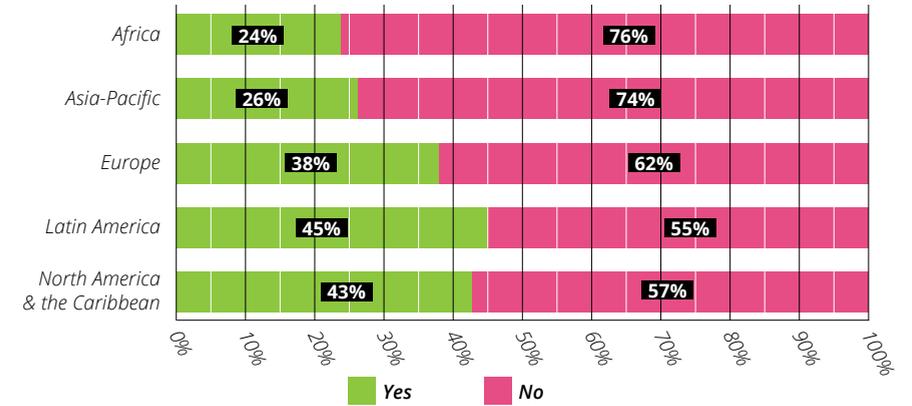


Figure 48. Regional breakdown of whether unions are offering courses/workshops on the governance of digital technologies (global aggregate)

Q41: What should be EI's priority areas with regards to digital technologies (please rank the top four):

This question asked respondents to rank the top four priority areas for EI's work on digital technologies of the following options:

- a. Commercialisation/privatisation in education
- b. Educators' well-being
- c. Enhancing the quality of teaching and learning
- d. Governance and policy dialogue
- e. Inclusion/equity
- f. Intellectual property and copyright
- g. Professional autonomy/academic freedom
- h. Protecting labour rights
- i. Student wellbeing
- j. Teachers and ESP's professional development/training

The graph below shows the global, aggregated weighted average response ranked by order of priority:

The top 4 priorities are:

- 1 Enhancing the quality of teaching and learning
- 2 Educators' well-being

- 3 Protecting labour rights
- 4 Governance and policy dialogue

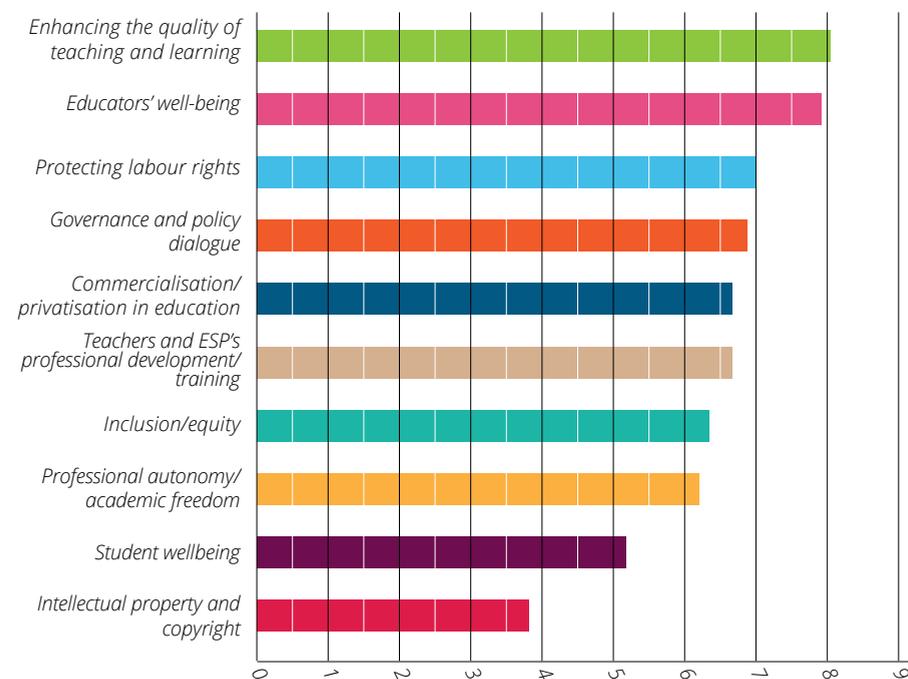


Figure 49. What should EI's priority areas with regards to digital technologies be (global aggregate)

Section Summary

This section has zoomed in on the actions and priorities of EI member unions, and the digital technology topics they would like EI to prioritise going forward. The data suggests that the member unions are engaging on the wider topic of digital tech, some regions mostly in the form of research, others mostly policy formation. Across the regions, the topic that has received the least attention is "The Collection and Use of Data on Learners and Staff."

Summary and Recommendations

The survey's 41 questions aimed to get a better understanding of how the education sector is changing due to digital technologies, the impact of these on educators and ESPs work, what the member unions' opinions, activities and priorities are, and the inclusion of unions in the governance and implementation of these technologies.

In section 1 on the impact of COVID-19 and the use of digital technologies, we summarised that there indeed has been an increase in the use of digital technologies in education, albeit with some regional differences. However, consultation with the unions around the introduction of these new tools has been very low.

In section 2 on various groups of teachers' and ESPs' access to digital technologies, we concluded that digital divides both within and across regions exist. This was not least evident in the urban/rural divide and in the rich area/poorer area divide. Bridging these divides will be very important for inclusive life and work opportunities for all. This survey suggests that there is no large gender divide in access to digital technologies.

Section 3 zoomed in on digital competencies, training and support. The survey results indicate that digital competencies in ITE are *least* included in Asia-Pacific followed closely by Africa and Europe. We also could see that the member organisations in Latin-America and North America and the Caribbean offer relatively more CPLD courses on digital competencies than organisations in the other 3 regions. The most striking finding was that teachers' training needs on digital technologies were overwhelmingly insufficiently met.

Section 4 was concerned with the impact of digital technologies on the autonomy and academic freedom of the unions' members as well as the use of said technologies in evaluating the performance of teachers. Here we concluded that a majority of respondents answered that digital technologies can *increase* teacher's professional autonomy and academic freedom, but they by a small margin are negative towards the use of technologies in assessing their own performance.

Section 5 focussed on the impact of digital technologies on teachers' and ESPs' wellbeing. The survey results here suggested that the greatest concern is the expected increased work intensification followed by a more or less equal concern for negative health impacts caused by techno stress and screen time. We observed that 32% of the responses report that teachers' and ESPs wellbeing is not addressed in any policy instrument, and only in 27% of collective agreements.

Section 6 was concerned with the governance of digital technologies and

whether education authorities' consulted unions on digital technologies, and whether unions are involved in assessing the digital technologies already in place. The section concluded that there is a relatively low level of consultation of unions by educational authorities and that there is a growing need to address the lack of structures and processes for this consultation.

Section 7 zoomed in on "advanced digital technologies" through two main streams of enquiry: one on union policies, positions, and digital preparedness, and another on advanced digital technologies, their existence in the education sector and the policies governing it. We firstly identified a disagreement between respondents on the presence or not of advanced digital technologies in the education sector. Secondly, we noticed that the high proportion of unions who are overtly favourable to the introduction of advanced technology in the sector stand in contrast to responses in Q29 and Q30 where respondents reported of the expected negative impacts of technology, but also to Q23 on teacher training needs not being met. It also is striking in light of the responses to the level of members' digital knowledge in this section, which for many was very low. We summarised that these issues merit further attention.

Section 8 on was concerned with member organisations' actions in relation to digital technologies and those they wish EI to pursue. The data suggests that the member unions are engaging on the wider topic of digital tech, some regions mostly in the form of research, others mostly policy formation. Across the regions, the topic that has received the least attention is "The Collection and Use of Data on Learners and Staff."

Pulling the insights together, we can summarise that EI member unions are engaged in the wider topic of digital technologies, but nascently so.

At the same time, the markets for EdTech are rapidly expanding, equalling prior to COVID-19, a 7 billion US dollar industry¹² - up from 0,5 billion in 2010 and expected to rise to \$285.2 billion by 2027.¹³

Recommendations

There have been several rather striking findings in the survey. *Firstly*, the relative lack of union consultation by education authorities with regards to the introduction of new digital technologies (Q7) as well as with regards to the digital technology needs of teachers/ESPs (Q32). That 45% of respondents answered they were not consulted at all, and a further 29% responded they were consulted "on a few aspects" speaks of a unilateral top-down decision-making structure that overtly disregards the professionalism and experience of teachers and ESPs. It also means that teachers and ESPs have no pre-implementation opportunity to raise questions or flag concerns. They are therefore withheld from having influence over the nature of these technologies. This must be changed.

Secondly, even fewer member organisations are involved in the assessment of these technologies (Q33 – where 53% answered they were not involved and a further 21% answered there are no structures in place for assessment). This is alarming as the monitoring and surveillance of learners and educators through digital technologies and the extraction and generation of data does have a huge impact on their human rights and privacy rights. In the future, unions must be consulted and involved in assessing the impacts of digital technologies. Not least to also safeguard their work-life balance which was a great concern for educators (Q29 and Q30).

Thirdly, deep digital divides clearly exist between richer and poorer neighbourhoods, as well as between urban and rural areas with regards access to the internet at the workplaces (Q10) as well as access to computers at workplaces (Q13). Here a stark pattern exists where educators in poorer areas and in rural areas across all regions are digitally the most disadvantaged. Adding to that the well-established Global North/Global South divides, and it becomes clear that the most digitally disadvantaged educators (and learners we can presume) exist in the Global South, in rural and poorer neighbourhoods. Whilst this is not surprising as 38% of the world's population have no internet access, it does not mean that unions should not be vigilant across all geographies and socio-economic statuses. Non-digitalised localities are the next market for tech companies. Their investments will meet local, regional, and national governments' need for support in their digital transformations and establishment of their digital infrastructure. In return, the tech companies get access to unexplored, and highly valuable, data sources.

Fourthly, the questions in the survey on advanced digital technologies (Q34-38) revealed a significant penetration of the listed technologies in the education sector, but also a split in the respondent's responses as to whether they actually are in place or not (Q34). Combined with a similar split in subsequent questions (Q36 and Q37) and a relative high number of respondents who did not answer these questions, it could indicate that respondents are not entirely knowledgeable about, or comfortable with, these questions. The responses that the education authorities have control over the data (Q37) despite the growth in private education technology is worth looking into in more detail. Have governments secured data control in public procurement, outsourcing, or public-private partnership contracts and arrangements? If so, is this a regional development, or a global development? Overall, the section on advanced digital technologies speaks to a need for union capacity building on the nature, the impact and the existence of these technologies.

Fifthly, linked to the previous point, Q23 asked whether teachers' training needs on digital technologies are met. 75% of respondents for both male and female teachers answered they were insufficiently met (60%) or not met at all (15%). Drawn together these two points could indicate that teachers could benefit from more in-depth training on the nature, challenges and potentials of (advanced) digital technologies as well as to what this means in relation to the governance of these technologies.

¹² <https://www.toptal.com/finance/market-research-analysts/edtech-trends-2020>

¹³ <https://www.prnewswire.com/news-releases/education-technology-market-size-worth-285-2-billion-by-2027-grand-view-research-inc-301095941.html>

Sixthly, question 38 zoomed in on the respondents' evaluation of the member organisations' as well as the members' level of knowledge about advanced digital technologies. Here 27% of the member organisations and 32% of the members were classified as 'not knowledgeable', and only 10% and 5% of the same as 'very knowledgeable'. This speaks once more of a strong need for capacity building.

Seventhly, member organisations were asked in Q40 whether they offered courses/workshops on the governance of digital technologies in education? (for instance, training for policy dialogue on the topic). Here 68% of member organisations answered no.

Based on the above findings as well as the global and regional particularities throughout the survey, the below lists a set of recommendations that will address the issues raised, and spur EI's ongoing work on digital technologies. It is pertinent that the issues raised are addressed, and resources pooled to enable member organisations to leapfrog into a worker-empowered future of (digital) education.

Training

EI could beneficially put together online and onsite blended learning modules that range in their complexity from beginners to advanced:

1. What is all this about EdTech - general trends in the market and their impact on education.
2. Understanding digital technologies - the data and artificial intelligence that are the building blocks of them, and their impact on educators and learners' autonomy and rights.
3. Safeguarding your rights - on strategies to protect human rights and privacy rights and the right to disconnect. This includes modules on learning to negotiate the data lifecycle at work.

These trainings would address 3 of the top 4 priorities for EI as identified in the survey, namely:

- A Educators' well-being
- B Protecting labour rights
- C Governance and policy dialogue

Research & Information material

These trainings should be supplemented and informed by further research and information material on the following topics:

1. The nature of EdTech - what systems are being introduced, where,

and how these will affect educators and learners. This should include horizon scanning for the next generation of education technologies and should be done in partnership with developers.

2. The changing nature of work in education - how are the skills and competency demands made of educators changing?
3. Audio/visual information materials aimed at member unions and their members on EdTech's impact on educators and learners.
4. Model criteria for assessing advanced digital technologies according to educators, including on human rights, digital rights and collective wellbeing.
5. Sharing of good practices and research across EI on digital technologies and union responses.
6. Digital divides - where, who and how they could be overcome. Investigating the correlations and causalities and providing good practice ways forward to sustainably bridge these divides.

These information materials will address the following top priorities as identified in this survey:

- A Enhancing the quality of teaching and learning
- B Governance and policy dialogue
- C Educator's well-being

Negotiation Models and Clauses

To support unions in their collective bargaining and the push for co-governance of digital technologies, the following model structures and clauses could be devised:

1. Governing EdTech - models for increasing unions' influence over the technologies used and holding authorities and individual schools responsible and accountable for their implementation and assessment. This model should include union criteria for assessing digital technologies.
2. To support member unions in their collective bargaining, EI could beneficially create module collective bargaining clauses on the following issues:
 - Educators' right to disconnect
 - Educators' data rights

These would address the survey's prioritisation of

- A Enhancing the quality of teaching and learning

B Governance and policy dialogue**Campaigns/advocacy**

Addressing policymakers, members' members, and the general public, EI and its members' unions could plan a number of campaigns and advocacy activities.

1. Addressing the UN, UNESCO, ILO, OECD on the digital divides and ensuring the empowerment of all learners regardless of geography or socio-economic status.
2. Addressing the need for teachers to be given specific Continuous Professional and Learning Development (CPLD) support around blended learning pedagogies and the use of new technologies.
3. Addressing national and regional authorities on the necessity of including educators' unions in the pre-evaluation, implementation, and assessment of digital technologies in education. This is not only to protect educators' wellbeing and professionalism but also to be the guardians of human rights and privacy rights in education.
4. Work with other GUFs on responses to the increasing privatisation of public services. Coordinating messages and amplifying each other's voice will be important.
5. To establish unions as the physical and virtual hub for educators as they, especially due to the pandemic, are increasingly isolated.

These campaigns and advocacy activities will address the following top priorities:

- A** Enhancing the quality of teaching and learning
- B** Protecting labour rights
- C** Governance and policy dialogue



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Teaching with Tech: the role of education unions in shaping the future

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