

OECD/INFE Guidance on Digital Delivery of Financial Education



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Introduction

Rationale for the development of the Guidance

Technological developments offer new possibilities in the field of financial education. Public authorities with a mandate and interest in financial literacy are increasingly designing and implementing initiatives that are delivered digitally, and complementing traditional delivery with digital elements (OECD, 2021a). The shift to digitalisation has been further enhanced by the unfolding of the COVID-19 crisis, the restrictions enforced in many economies and the need to move from face-to-face to online programmes, to reach wider audiences or to provide tailored support to the most vulnerable sectors of society (OECD, 2020b).

Innovative uses of digital technologies in the delivery of financial education can serve multiple complementary objectives and effectively support the building blocks of financial education (OECD, 2021a). However, the use of technology in itself is not a solution. Technology offers the promise of making financial education more effective in supporting citizens in building financial resilience and achieving financial well-being, but public authorities must be equipped to design and implement digital initiatives that meet the financial literacy needs and digital preferences of the target audiences. Public authorities must also ensure that the use of digital technologies does not lead to digital exclusion, and take into account the needs of those with lower digital literacy and access.

This Guidance was developed to assist policy makers in deciding when to adopt digital delivery, and how to effectively design and implement digital financial education initiatives. It builds on the work undertaken by the OECD and its International Network on Financial Education (OECD/INFE), including the G20/OECD-INFE Policy Guidance Note on Digitalisation and Financial Literacy (OECD, 2018a) and international comparative analyses on how public authorities design, deliver and evaluate digital financial education initiatives, notably in the context of the COVID-19 pandemic (OECD, 2021a; OECD, 2021b).

Key recommendations

The Guidance offers non-binding actionable directions to interested policy makers across the key steps in the choice, design, delivery and evaluation of digital financial education initiatives.

- **Use digital delivery to support the implementation of national financial literacy strategies**
 - Address digital delivery through national strategies' roadmaps and action plans, including guidelines for stakeholders and research responsibilities
 - Identify partners from across all financial education stakeholders, learn from successful experiences, ensure that existing guidelines on private sector involvement are fit in the digital space
- **Reinforce ICT project management skills in public authorities**
 - Fill ICT as well as cost analysis and outsourcing skills gaps
 - Build appropriate data governance
- **Adapt design to the audiences' digital readiness and preferences**
 - Take into account digital access, literacy, behaviours and preferences of target groups, and when relevant combine digital with traditional delivery approaches
 - Exploit the pedagogical possibilities offered by digital delivery, notably interactivity and personalisation
 - Apply techniques inspired by behavioural insights, such as personal goal setting, reminders, just-in-time information and gamification
 - Test with focus groups and focus on the delivery method itself and on users' experience
- **Support effective programme implementation**
 - Train the trainers to new methods of delivery
 - Effectively disseminate financial education resources
 - Reduce participation costs for low-income groups
- **Build-in monitoring tools** and include digital delivery in programmes' theories of change
 - Exploit the automatic collection of data and real-time monitoring that is possible thanks to digital technologies, to understand how users interact with the resource
 - Conduct quantitative evaluations to the extent possible, following experimental or quasi-experimental designs.

Advantages and challenges linked to digital delivery

The choice of digital delivery comes from an understanding that digital delivery, despite its specific challenges, can potentially facilitate the effective provision of financial education, extend its reach, and ultimately contribute to positive behavioural change among the target audience. Digital delivery can in particular:

- Improve access to information and advice, through websites that often also offer calculators and tools for personal financial management, or mobile apps that can meet the needs of citizens with disabilities.
- Deliver financial education training, by design or as an adaptation of face-to-face programmes, through synchronous and asynchronous teaching.

- Develop skills and confidence, such as money management and control over finances, in particular through the design of user-friendly personal financial management tools and mobile apps, or through the use of gamification to enhance learning.

The application of digital technologies to financial education can bring tangible advantages to financial literacy policy makers (OECD, 2018a; OECD, 2021a). An efficient use of digital technology can in particular:

Extend the reach of financial education, overcoming limitations set by geographical location or the target's personal schedule, and contribute to the United Nations Sustainable Development Goal (UN SDG) 4 "ensuring an inclusive and equitable quality education and promote lifelong learning opportunities for all"¹.

- Scale up existing traditional interventions that have proven successful, and make them available to a wider audience.
- Potentially lower the costs linked to traditional delivery, exploiting the economies of scale made possible by digital technologies.
- Respect social distancing requirements as imposed or encouraged by governments in everyday life or education in the context of the COVID-19 pandemic.
- Allow for an easier review of the content and of the delivery method, informed by both monitoring of the intervention and by developments taking place in retail financial markets.
- Tailor the content of the initiatives to the audience thanks to the new possibilities offered by data analytics.
- Increase opportunities for data collection and analysis, bearing in mind the need to respect existing data protection frameworks.
- The use of digital delivery in financial education also allows focusing on core financial literacy competencies. Digital tools can be particularly useful in strengthening positive financial behaviours that can support long-term financial resilience and improve well-being, such as budgeting, saving for the short and for the long-term, making safe use of credit, and comparing products (OECD, 2021b).

Despite these potential advantages, the effective application of digital technologies to the delivery of financial education comes with specific challenges. These include:

- Adapting the content to a digital or online format (materials might need a rethink, lectures and classes might need to be shorter).
- Building ICT project management and design capacity within public authorities.
- Training the trainers equipping them with a new skillset and competencies.
- Finding new ways to engage with and motivate the target audience (including potentially vulnerable ones).
- Address and overcome the limited access to digital tools and lack of digital skills among some target groups.
- Take into account personal data protection issues in a digital environment.
- Making sure that technology does not amplify existing inequalities in access and quality of learning.

Objectives and scope of the Guidance

This Guidance is intended to support public authorities in deciding when to opt for digital delivery of financial education and when to prefer traditional or hybrid approaches, and in designing and implementing

¹ See <https://sdgs.un.org/goals>

digital delivery initiatives. The Guidance recognises that the application of digital technologies to financial education does not by itself lead to better outcomes and must be adapted to the digital literacy and learning preferences of different population groups. An analysis of the issues identified in this Guidance can help policy makers to decide whether to adopt a fully digital, a hybrid, or a traditional delivery method.

It complements the provisions included in OECD Recommendation on Financial Literacy (OECD, 2020e), and offers non-binding and high-level directions to interested policy makers. These should be taken into account depending on local circumstances, including levels of digitalisation at national level, national data protection regimes and needs and preferences of different target audiences.

This Guidance applies to innovative uses of digital technologies used in the delivery of financial education. It covers uses of digital solutions to improve access to financial information, advice and training, to develop financial skills and confidence and to help individuals make informed choices with respect to their financial decisions. This includes websites with financial education resources or personal financial management tools and calculators, content developed for and delivered through social media, online training material and Massive Open Online Courses (MOOCs), digital quizzes and games, mobile apps, use of bots and artificial intelligence (AI) (See Box 1).

Sources and process

The OECD/INFE, notably through its Working Group on Digital Financial Literacy², started addressing these issues in 2017, in the framework of Germany's G20 Presidency. It has continued to develop research and analysis to support policy makers in developing digital delivery of financial education.

The use of digital technologies in the delivery of financial education has been the object of roundtable discussions at the meetings of the Technical Committee of the OECD/INFE and has been extensively discussed in the Working Group on Digital Financial Literacy throughout 2020 and 2021.

This Guidance builds on these discussions, on several outputs of the OECD/INFE, as well as on work undertaken in support of the agenda of the G20 Global Partnership on Financial Inclusion (GPFI) over the years.

Among the outputs that informed the development of this Guidance are in particular:

- Ensuring financial education and consumer protection for all in the digital age (OECD, 2017a).
- G20/OECD-INFE Policy Guidance on Digitalisation and Financial Literacy (OECD, 2018a).
- Smarter financial education: key lessons from behavioural insights for financial literacy initiatives (OECD, 2019b).
- Personal Data Use in Financial Services and the Role of Financial Education: A Consumer-centric Analysis (OECD, 2020a).
- OECD/INFE members' responses to a survey on the implications of the COVID-19 crisis on financial literacy policy and practice, circulated in the third quarter of 2020.
- The OECD/INFE webinars on financial resilience³.
- Digital Delivery of Financial Education: Design and Practice (OECD, 2021a).
- G20/OECD-INFE Report on Supporting Financial Resilience and Transformation through Digital Financial Literacy (OECD, 2021b).

² For a list of member institutions, please see Annex A.

³ See www.oecd.org/financial/education/oecd-financial-resilience-webinar-series.htm

- G20/OECD-INFE report Navigating the Storm: MSMEs' Financial and Digital Competencies in COVID-19 times (OECD, 2021c).

The role of digital delivery of financial education has also been addressed through the joint EU/OECD-INFE project to develop a Financial Competence Framework for adults in the EU (European Union/OECD, 2022), which recognises that the digital delivery of financial information, education and advice can support adults in the European Union in the development of financial literacy competences.

The final version of this Guidance was approved at the OECD/INFE meetings of November 2021.

Box 1. Definitions used in this document

Financial Literacy: a combination of financial awareness, knowledge, skills, attitude and behaviours necessary to make sound financial decisions and ultimately achieve financial well-being.

Digital Financial Literacy: a combination of knowledge, skills, attitudes and behaviours necessary for individuals to be aware of and safely use digital financial services and digital technologies with a view to contributing to their financial well-being.

National strategy on financial literacy: a nationally co-ordinated approach to financial education that consists of an adapted framework or programme, which:

- recognises the importance of financial education - including possibly through legislation - and defines its meaning and scope at the national level in relation to identified national needs and gaps;
- involves the cooperation of different stakeholders as well as the identification of a national leader or co-ordinating body/council;
- establishes a roadmap to achieve specific and predetermined objectives within a set period of time; and,
- provides guidance to be applied by individual programmes in order to efficiently and appropriately contribute to the national strategy (NS).

Online learning (often referred to as **e-learning**) refers to the use of digital materials to support learning. It does not necessarily take place at a distance. It can be used in physical classrooms to complement more traditional teaching methods, in which case it is called **blended learning**.

Distance learning refers to learning that is done away from a classroom, the workplace, or the home. Traditionally, this involved offline correspondence courses wherein the student corresponded with the school via post. Today, it involves mainly online education, with an instructor that gives lessons and assigns work digitally. Distance learning can be synchronous, when the interaction takes place at the same time for all students and teacher(s)/facilitator(s), or asynchronous, which is more self-directed and in which the student decides when to use the learning resource.

Source: OECD (2020e), OECD Council Recommendation on Financial Literacy; OECD (2020d), Policy Responses to Coronavirus (COVID-19) The potential of online learning for adults: Early lessons from the COVID-19 crisis.

OECD/INFE Guidance on digital delivery of financial education

This Guidance is addressed to public authorities designing and implementing digital initiatives to deliver financial education, alone or in cooperation with stakeholders from the public and non-public sectors.

It addresses the following areas:

- Digital delivery of financial education as a means to support the implementation of national strategies on financial education, through the inclusion of digital delivery within their roadmaps and action plans, and through dialogue with relevant stakeholders.
- The Information and Communications Technology (ICT) project management skills that are necessary among public authorities to inform the choice of digital projects, their design and implementation, including personal data governance.
- The design of digital financial education initiatives, including the assessment of digital readiness of the audience and the need to meet their digital literacy levels and preferences, as well as the use of behavioural insights and the pedagogical tools that are allowed by digital technologies.
- Effective implementation and the steps to be undertaken to train-the-trainers, to communicate effectively on the existence and advantages of digital financial education resources, and facilitate usage by low-income groups.
- Monitoring and evaluation of digital initiatives, the advantages linked to digital data collection and the need to include digital delivery in the theory of change to be assessed through evaluation.

Under each section, the Guidance itself is preceded by an explanation and rationale.

Include digital delivery in national financial literacy strategies

Address digital delivery through national strategies' roadmaps and action plans

Considering the advance of digitalisation before and during the COVID-19 crisis, and the fact that digital tools are likely to become an even more important form of communication in the future, the innovative use of digital technologies applied to the delivery of financial education should ideally be included as part of national strategies' roadmaps and action plans⁴.

Indeed, digital delivery has become the main channel to provide financial education, and while traditional delivery (face-to-face, print, traditional mass media) will continue to play a role, especially for vulnerable audiences, digital delivery is set to become dominant in future years.

⁴ Over 75 economies have a national financial literacy strategy.

Including digital delivery within a national strategy can promote dialogue among stakeholders on good practices and facilitate sharing of information. It can also facilitate directing resources to digital delivery solutions, and create avenues to provide guidance on digital delivery to stakeholders.

Within the framework of a national strategy, consideration could also be given to assigning to one authority, department, or working group - depending on national circumstances- responsibilities that are relevant for the digital delivery of financial education, such as data collection and research on digital literacy, or on research and evaluation of effective digital delivery channels.

Finally, financial education policy makers could also assess the presence within their jurisdiction of digital strategies in education or on ICT use in the education system (van der Vlies, 2020) to look for synergies, expertise, data and resources that can support the digitalisation of financial education delivery.

Policy makers should consider:

- *Supporting the use of digital technologies in the delivery of financial education within the national financial education strategy's roadmap*
- *Including guidelines on digital delivery of financial education within their national strategy*
- *Assigning responsibilities for research and analysis on issues associated to digital delivery of financial education*

Identify partners and learn from successful experiences

Public authorities could map existing digital financial education initiatives in their jurisdictions and identify relevant partners in the design and delivery of digital financial education across the stakeholders contributing the national financial literacy strategy and beyond.

Not-for-profit stakeholders

Relevant not-for-profit stakeholders include:

- **Universities:** these can provide public authorities with expertise on areas that can inform the development of digital financial education initiatives, such as digital learning or behavioural sciences, and contribute to monitoring and evaluation processes.
- **Consumer associations and industry bodies:** they can offer important input to the content of digital financial education initiatives, and relay their existence to consumers and private sector institutions.
- **NGOs working with vulnerable audiences, social workers in community centres, or debt-counselling networks:** these can become valuable partners in advertising and distributing digital financial education resources, or in supporting their implementation with vulnerable groups. Indeed, while digital initiatives bring the promise of extending the reach of financial education programmes and making it more easily available, some audiences may be harder to reach through digital means due to lack of familiarity with technology, age (G20, 2019), or because of socio-economic vulnerabilities.

The private sector

Mapping and monitoring the digital financial education initiatives of the financial sector, including personal financial management tools and innovations in Ed-tech (i.e. the application of ICT tools to educational practices to enhance learning), can be a useful source of information for policy makers.

The private sector is investing considerable amounts of resources in the development of digital (financial) education tools. Financial institutions, building on the possibilities offered by the digitalisation of their relationship with clients, are increasingly offering personalised resources. In parallel, the Ed-tech sector is

growing: educational mobile apps available for download represent between 8 and 10% of those on the Apple store and Google Play, ranking respectively third and second among the most popular before lifestyle, utilities or entertainment.

Policy makers should consider:

- *Identifying trusted partners that can relay digital financial education resources developed by public authorities, and consider partnering with the relevant ones to reach specific target audiences, especially the most vulnerable and the least likely to possess the digital literacy and digital infrastructure (elderly, low-income).*
- *Checking the digital solutions developed by private and not-for-profit stakeholders to understand the offer of digital (financial) educational tools and identify partners, as permitted by local regulation and bearing in mind the need for neutrality, which can relay financial education messages and material of a national strategy on their platforms.*
- *Making sure that national guidance about the involvement of private and not-for profit stakeholders in financial education, and on what is considered financial education vs. marketing, also covers digital financial education.*

Reinforce ICT project management skills in public authorities

Cost analysis, ICT skills and outsourcing

The growing relevance of digital delivery is likely to become a structural feature of the way financial education is provided. With this in mind, financial education policy makers could undertake steps to build up within their institutions ICT project management skills (OECD, 2014; OECD, 2017b), including skills required to update the content of existing digital resources, reinforce the expertise required to analyse costs associated to digital delivery, and make decisions on outsourcing.

Assess short and long-term costs and fill ICT skills gaps

To ensure the effectiveness of digital financial education, policy makers have to understand the cost implications of different digital delivery methods and have to carry out cost-benefit analysis of the options available to them. Indeed, while digital delivery of financial education can substantially reduce the cost per user compared to traditional delivery, its design phase and the technical set up can determine higher initial fixed cost. Besides initial design and set-up costs, public authorities also have to factor in future costs, both financial and human terms, linked to the implementation and the maintenance of the digital resource and the update of its content.

Financial education authorities could in particular scale up their technical skills with respect to the maintenance and the upkeep of digital resources. Digital initiatives that do not undergo frequent updates risk becoming irrelevant much quicker than traditional ones, become less attractive to the target audience and therefore become less effective. The relevance of quick updates to reach to people's needs in time of needs has been particularly evidenced by the unfolding of the COVID-19 pandemic.

Ensure efficient external procurement

Financial education policy makers could benefit from building specific expertise on ICT procurement⁵. Following a cost benefit analysis, policy makers should decide which functions to externalise and which to perform through internal means and the authority's IT and communication department(s). If opting for outsourcing, policy makers could benefit from consulting information on existing ICT contracts and digital initiatives across the public sector, where central repositories of this information exists (OECD, 2017b).

Cooperation at the ICT technical level

Financial education policy makers could also consider cooperating with other financial education public authorities at the national and international levels to share and discuss digital solutions and innovations, including the use of open source software, content and AI models.

Policy makers should consider:

- *Assessing whether digital delivery can be cost-effective and if its future cost can be borne by the authority, taking into account initial fixed costs as well as future financial and human costs linked to the upkeep and update of the initiative, its monitoring and evaluation.*
- *Building the ICT skills required to update the content of digital initiatives.*
- *Filling ICT project management skills gaps: review their internal capacity to evaluate ICT needs and train the workforce on skills and competences needed for working on ICT projects and making decisions on outsourcing.*
- *Cooperating with other public authorities nationally and internationally to discuss and share ICT solutions.*

Build appropriate data governance

The design of digital financial education initiatives might require addressing users' data protection and confidentiality, whenever users and participants are invited to register, set up profiles, upload or share personal and financial information.

Policy makers should make sure that the personal data of users, ranging from contact details to information entered on their personal financial situation, is handled respecting the applicable regulation, and that appropriate steps are taken to communicate this to users, to increase their confidence in the resource (OECD, 2020a).

Policy makers should ensure that the personal data of users of digital financial education initiatives is handled respecting the applicable regulation, and that users are aware of the steps undertaken to safeguard their personal data.

⁵ ICT procurement refers to the purchase by governments and state-owned enterprises of Information and communications technology goods, services and works.

Adapt design to digital readiness and preferences, building on adapted pedagogy and behavioural insights

Take into account digital access, literacy, behaviours and preferences of target groups

Individuals' digital readiness

The application of digital technologies to financial education might not be suited to every population group. Policy makers need to assess the digital readiness of target audiences, intended as a combination of digital access and basic digital literacy.

First, the availability of access and devices should be taken into account when deciding to opt for digital delivery of financial education. An effective use of digital financial education resources might require access to the internet and appropriate hardware, whether these are provided in a group setting by an organisation or in school, or required of the individual user.

Second, digital skills are a prerequisite to translating engagement with an online or digital activity into a tangible outcome in real life. With the exception of programmes in which the use of technology is fully mediated by trainers and the target audience is not interacting directly with digital tools, an effective use of digital financial education resources requires specific digital competences. These range from basic digital operations and information-navigational skills (browsing, searching and filtering, evaluating and managing data, information and digital content) to more complex competencies linked to digital communication and collaboration (such as interacting, sharing and collaborating through digital technologies, and managing a digital identity) (see Box 2).

Box 2. Digital divides

Digital divide increasingly about skills and not access

Inequalities in access and use of digital technologies by age, gender, education and other socio-economic markers imply that certain groups are better placed than others in harnessing digital technologies to achieve well-being outcomes.

While the increase in connectivity, both in emerging and advanced economies, is gradually reducing the digital divide linked to access to the internet and digital resources, a second important divide is emerging. This second-level digital divide is relative to digital skills and usage patterns, and has important implications for offline outcomes (Burns and Gottschalk, 2019; OECD, 2018c). Research indicates for example that different digital skills between socio-economic and socio-cultural groups lead to lower levels of achievement of and satisfaction with outcomes from Internet use in areas linked to economic, cultural, social and individual well-being (van Deursen et al., 2015).

Digital literacy

Digital skills go beyond only knowing how to use a computer and Internet technology, and can be classified into four broad categories (Helsper, et al., 2016):

- Operational skills encompass the basic technical skills needed to use the Internet and other computer equipment;
- Information-navigation skills contain cognitive skills needed to search, find and understand information on the Internet and to verify and evaluate its source;
- Social skills relate to the ability to communicate and interact online, and to build digital social capital; and
- Creative skills are the skills needed to create and share quality content online.

Digital literacy levels are key factors to consider in the design of digital financial education initiatives. They can determine whether individuals will use and understand digital financial education resources, influencing both uptake and effectiveness of the intervention. Those with higher digital literacy are also more likely, unsurprisingly, to choose digital education material and display preferences for the use of online resources in education (OECD, 2020d).

Learning environments

Policy makers should take into account the physical conditions under which users will access and use the digital financial education resource when deciding to opt for digital delivery and which digital format to choose.

In the case of formal education delivered remotely, for example, the physical context in which digital learning takes place can greatly influence the quality of learning and the extent to which the audience is able to understand and concentrate on the content. Evidence collected through the OECD PISA assessment indicates that on average 9% of 15-year-old students across OECD countries and up to 30% in some emerging economies do not have a quiet place to study in their homes, with these students coming mostly from the most disadvantaged backgrounds (OECD, 2020f).

The learning context is equally important outside of formal education, and policy makers need to take into account that users of digital financial education resources might at the same time be browsing the internet, using a mobile app, or be on public transport.

Digital behaviours and preferences of different groups

In applying digital solutions to the delivery of financial education, policy makers should go beyond measures of digital readiness. They should take into consideration the preferences and behaviours of different population groups with respect to use of educational resources, online access and digital content fruition, and tailor content and delivery accordingly, in particular deciding on the appropriate mix of digital and traditional delivery if required (see Box 3).

With respect to access, target audiences display different behaviours and preferences within and across economies. In advanced economies, older generations might be more familiar with desktop computers while younger generations display a preference for smartphone use. In emerging markets, access to the internet through mobile can be the most widespread option. How individuals access online and digital resources is of particular relevance, as it can affect how and to what extent users can make a full use of a digital education resource and it can better support or on the contrary prevent full use of certain digital features (video streaming, video conferencing and interaction among multiple participants).

The best approach for each target group should be designed based on existing evidence from a variety of sources, notably data and research on digital literacy and behaviours, preferences for educational fruition, and attitudes towards data sharing. Such an evidence-based tailored approach can ensure that resources meet the needs of different population groups and contribute to increase completion rates for digital learning tools.

Policy makers should:

- *Consider the kind of access to the internet and digital devices used by the target audience, as this can greatly influence take up and use of the digital financial education resource and the quality of the learning experience*
- *Assess the possible impact of users' physical constraints of time and space on the use of the digital financial education resource*
- *Study the digital behaviours and preferences of different target groups building on a variety of sources, and choose pedagogical features and digital platforms that are best suited to them.*
- *When relevant and based on target audiences' preferences and behaviours, combine digital delivery with traditional delivery approaches.*

Box 3. Adapting digital delivery to different target groups

The characteristics of the digital delivery channel as well as their content should be chosen building on evidence on the financial literacy needs and digital learning preferences of the target group.

The level of digital literacy is a first aspect to take into account. Individuals with low levels of digital literacy are less likely to use digital resources for educational purposes and to translate online activity in offline benefits (see Box 2). Evidence indicates that dedicated outreach campaigns can counter low ICT skills and have proven successful in making digital learning effective with the least digitally literate (OECD, 2019c). The experiences of OECD/INFE members suggest additional approaches to counter low levels of digital skills: collaborating with the not-for-profit sector to receive face-to-face support in delivering digital resources (OECD, 2021a), and opting for simple technology such as communications on instant messaging platforms (OECD, 2021b).

Policy makers should consider, beyond levels of digital literacy, additional factors that are specific to different target audiences. Available research and lessons learnt from the experiences of OECD/INFE members for selected target audience are presented below.

Young people

The application of digital technologies to learning can foster young people's motivation and engagement (Peterson et al., 2018). Existing meta-analyses portray the positive contribution of the use of computers and other technologies (in the classroom), the utilisation of multimedia materials, video gaming, and collaborative activities, and how digital games can enhance students' learning compared with non-game conditions (Clark et al., 2016).

However, not all young people use technology in the same way or to the same extent. Moreover, they may have different attitudes to digital learning depending on their socio-economic background or ability levels. PISA data indicates that while the amount of time spent online does not differ across students from different socio-economic backgrounds, equal access does not translate in equal use (OECD, 2016b). Both students from advantaged and disadvantaged backgrounds use the Internet to chat and play games, but the first ones are more likely to also search for information or read news.

With respect to digital financial education resources, research conducted in the United States shows that financially literate Millennials use more often informational websites, personal finance blogs, and articles than the financially illiterate ones, and that the illiterate display a preference for financial education material on social media (Lusardi and Hasler, 2019).

Seniors

While it is important to look at national circumstances, seniors tend to have lower take up of digital technologies and display lower digital literacy. The results of the OECD Programme of Assessment and Analysis of Adults' Skills (PIAAC) indicate that only 11% of older adults (55-65 year olds) scored at Level 2 or 3 in the problem solving in technology rich environments assessment, compared to some 45% of 25-34 year-olds (OECD, 2016d). In addition, a large share lack computer experience or failed the PIAAC ICT core test.

The experience of INFE members suggests that digital financial education resources for seniors can be effectively complemented by the use of traditional media such as television and radio, and can be best delivered through hybrid approaches, with the involvement of organisations working with the elderly and in social clubs (OECD, 2021a; OECD, 2021b).

Migrants

Work conducted by the OECD in financial education technical assistance projects in the Community of Independent States, indicate the effectiveness of videos on platforms such as YouTube and social media networks as an effective outreach method for migrants (OECD, 2021b). Videos sent on mobile phones are chosen by public authorities and financial education stakeholders working with forcibly displaced people in Rwanda to deliver financial education training courses (AFI, 2021).

Exploit the pedagogical possibilities offered by digital delivery

Financial education programmes should be based on core competencies frameworks, should be of high quality and duration, and should be relevant and tailored to the audience (OECD 2020e).

In addition, when designing digital financial education programmes, policy makers should build on the pedagogical possibilities offered by the use of digital tools with respect to the presentation of content, interaction, customisation, and room for trial-and-error (OECD, 2018a). Digital tools offer the opportunity to depict information in a flexible, dynamic and graphic way, including through the use of multiple languages. They also allow for high degrees of personalisation, thanks to the possibility of setting up profiles or accounts and upload personal (financial) information, making them more easily adaptable to consumers' learning needs. Finally, through the use of simulations or games, digital tools offer to users the possibility of making financial decisions in scenarios that mimic real life situations and choices.

Policy makers should exploit the possibility of:

- *Depicting information in a flexible, interactive and graphic way more easily, making use of visual influences such as design and layout, colour and brightness.*
- *Allowing users to set up profiles and obtaining personalised information, instruction and advice.*
- *Allowing users to test financial concepts and products, learn by trial and error and experience failure in a controlled environment allowing experimentation that would otherwise be too costly or dangerous in real life.*

Apply techniques inspired by behavioural insights

Digital tools such as websites or mobile applications easily allow the design of behaviourally informed interventions (IOSCO OECD, 2018; OECD, 2019b). When well designed, these can limit the negative impact of personal behavioural biases on financial decision-making, such as limited attention, short-termism, inertia, and overconfidence. Policy makers can use digital tools to make users aware of their personal biases, to nudge them into a certain course of action, and support behavioural change, in particular through:

- Personal goal-setting and feedback mechanisms
- Automated reminders, such as to save or to pay back a loan
- Just-in-time information, at point of sale or immediately after, for example through price comparison tools
- Gamification and the benefits of playful environments on learning, including mechanical elements (rapid feedback, badges and goals, participation, and progressive challenge) and emotional elements (narratives and identities, collaboration and competition).

Financial education policy makers could also consider building expertise within their institutions, or establishing partnerships with academia and research institutions, on how to best include behavioural elements within their financial literacy initiatives.

Policy makers should consider

- *Using behavioural insights in the design of digital financial education initiatives, and focus on how digital tools can promote people's understanding of their own biases and reinforce positive behaviours.*
- *Exploiting in particular personal goal setting, reminders, just-in-time information and gamification techniques.*
- *Building behavioural expertise within their institution, or cooperate with academia as relevant.*

Test with focus groups

The OECD Recommendation invites policy makers to pilot both materials and delivery methods on a small scale before rolling them out, to identify and address any issues that have not been foreseen in the design phase (OECD, 2020e). This can be especially beneficial in the design of digital financial education initiatives, where the way the content is presented and the medium on which it is delivered might pose challenges to those with lower levels of digital literacy.

Testing should cover where applicable both alpha testing, i.e. testing in a controlled environment, and beta testing, which is done by real users reporting real problems and which can notably take into account the effects of different learning environments on learning outcomes.

Policy makers should consider:

- *Systematically testing digital financial education programmes with focus groups, addressing concept, content and digital features.*
- *Focusing their tests, even more than for traditional delivery, on the delivery method itself and on users' experience.*

Support effective programme implementation**Train the trainers**

Policy makers should make sure that trainers and facilitators, whenever they support digital delivery, are well equipped to implement digital financial education initiatives. Technology is not sufficient to achieve better learning outcomes if trainers and teachers do not have the competence to use it in a pedagogically sound fashion.

In the formal school sector across OECD countries, only 54% of teachers reported that using information and communication technology (ICT) in teaching was covered in their initial teacher education, and only 43% of teachers reported that they felt well or very well prepared for teaching with ICT when they finished their formal training (OECD, 2019d). Even fewer trainers may have specific digital teaching skills and experience of distance teaching in a financial education context.

Policy makers could address the digital skills gaps of trainers through in-person training, dedicated webinars, or by making materials available through existing websites and platforms for teachers and trainers. They could also facilitate professional learning and exchange by creating communities of practice where practitioners form learning communities and share materials and good practices. Finally, financial education policy makers they could make use of the training solutions developed by other areas of the public sector, often as a response to the COVID-19 pandemic. In several economies, governments have

established dedicated platforms to support teachers and trainers through online training, workshops and seminars to upgrade their ICT skills and to assist with the preparation of online learning materials⁶.

Policy makers should consider

- *Setting up dedicated train-the-trainers programmes on the features and delivery of digital financial education resources*
- *Initiating communities of practice to support professional learning and share good practices*
- *Making use, whenever relevant, of public sector platforms developed to upskill teachers and trainers*

Disseminate digital financial education resources

Communicating on digital financial education resources should go beyond digital media and channels (such as social media, sponsored ads, mailing lists) and build on traditional communications channels (such as print, TV and radio, events with key figures from local jurisdictions and the press), in particular to reach the least digitally literate audiences.

Furthermore, particular attention could be given to the possibilities offered by international and national financial literacy events, from the Global Money Week to national financial literacy, savings or pensions days/weeks/months. The increased digitalisation of these events to adapt to the COVID-19 pandemic (OECD, 2021) makes them ideal platforms to encourage the participation in longer term digital financial literacy resources and programmes both for the public and for specific target audiences.

Beyond making the initiative known by its possible users, communicating on digital financial education initiatives is also the occasion to convey important messages on their features at a time in which the digital educational offer is expanding, and many non-public entities are engaging in educational activities.

The public sector can stand out by building on a message of unbiasedness, lack of commercial interest, strong data protection, and respect for individual privacy. Communication can also focus on how the digital financial education resource, beyond its immediate objective (pension awareness, savings habits, prevention of over-indebtedness) can contribute to wider and longer-term objectives - such as important purchases, funding higher education - and increase individuals' well-being.

Policy makers should consider:

- *Designing communication campaigns that include both digital methods, and traditional ones.*
- *Exploiting international and national awareness campaigns, especially in the light of their increased digitalisation following the COVID-19 pandemic.*
- *Stressing the unbiased nature, the lack of commercial interest and the respect for privacy and data protection of their digital financial education resources.*
- *Encourage uptake by communicating on how financial education resources can contribute to long-term personal life objectives.*

Reduce participation costs for low-income groups

The use of digital financial education resources may require the use of mobile data by users. Especially in the least developed economies, ICT services can be prohibitively expensive for those on low incomes (ITU,

⁶ <https://en.unesco.org/covid19/educationresponse/nationalresponses>

2021). This can result in those with higher financial fragility not accessing and using digital financial education resources because of the high cost of connectivity relative to their income.

Policy makers targeting these audiences could explore solutions that facilitate usage, including covering the data cost associated with the use of a digital resource to the extent possible. This may include offering pre-paid data bundles and negotiating reverse billing with telecom companies for access to specific educational resources (mobile apps or websites) to carry the cost of the data used by users.

Policy makers should consider ways to ensure that digital financial education resources are accessible and affordable for those with low incomes and higher financial fragility. They could envisage solutions that include providing pre-paid data bundles to programme participants and offering reverse billing.

Build-in monitoring tools and include digital delivery in a theory of change

The use of digital technologies can increase both the availability and quality of the data that can be collected for the purpose of monitoring and evaluation.

Monitoring capabilities should be built in as part of the initiatives' design, whether it is through automatic data collection, through information required at registration or log in, or through monitoring of the initiatives' use (e.g. Google Analytics). This can complement traditional approaches, such as monitoring the use of the resource in a focus group or seeking feedback from users and trainers.

Policy makers should build on these increased data collection capabilities to evaluate the impact of digital financial education initiatives. The evaluation would ideally be quantitative, and follow an experimental or quasi-experimental design (OECD/INFE, 2010a; OECD/INFE, 2010a; OECD/INFE, 2010b). The evaluation should cover both the impact and the outcomes of the initiative, as well as the digital technology used as part of the inputs.

Policy makers should consider in particular:

- Involving stakeholders in the evaluation process where applicable (subject matter experts, trainers, teachers, community organisations and NGOs with in-depth knowledge of a vulnerable target audience)
- Including digital delivery and its features as part of the initiative's theory of change, making it one of the objects of the evaluation process. Among the questions to answer are:
 - Has the digital technology made a difference on the outcome and impact of a programme?
 - Was the choice of the digital technology cost-effective?
 - Has implementation of the programme (whether via individual uptake or via trainers) taken place as expected?
 - Has the programme had any effect on the digital skills of the audience?
- Releasing evaluation results, making them available to domestic and international financial education stakeholders, to contribute to an increased understanding of digital delivery in financial education.

Policy makers should consider:

- *Building on the evidence collected through testing with focus groups.*
- *Exploiting the automatic collection of data and real-time monitoring that is possible thanks to digital technologies, to understand how users interact with the resource.*
- *Conducting quantitative evaluations to the extent possible, following experimental or quasi-experimental designs.*
- *Including digital delivery as part of an initiative's theory of change to understand its role in outcomes and impact, its cost-effectiveness, and whether it had any effect on digital literacy.*
- *Involving stakeholders in the evaluation design, and sharing what works with the domestic and international financial education community.*

Annex A. Members of the OECD/INFE Working Group on Digital Financial Literacy

Australia	Australian Securities and Investments Commission
Austria	Central Bank of Austria (OeNB)
Brazil	Central Bank of Brazil
Brunei Darussalam	Brunei Darussalam Central Bank
Canada	Financial Consumer Agency of Canada
Chile	Financial Markets Commission (CMF)
Czech Republic	Ministry of Finance
Finland	Bank of Finland
Germany	Deutsche Bundesbank
India	Reserve Bank of India
India	Securities and Exchange Board of India
Italy	Bank of Italy
Italy	National Commission for Companies and the Stock Exchange (CONSOB)
Japan	Financial Services Agency, Government of Japan
Korea	Bank of Korea
Luxembourg	Financial Sector Supervisory Commission (CSSF)
Mexico	Central Bank of Mexico
Morocco	Moroccan Foundation for Financial Education
Mozambique	Central Bank of Mozambique
Netherlands	MoneyWise Platform, Ministry of Finance
New Zealand	Te Ara Ahunga Ora Retirement Commission
North Macedonia	National Bank of the Republic of North Macedonia
Peru	Superintendence of Banking, Insurance and Private Pensions Funds
Poland	Ministry of Finance
Portugal	Bank of Portugal
Portugal	Portuguese Insurance and Pension Funds Supervisory Authority (ASF)
Romania	National Bank of Romania
Singapore	Monetary Authority of Singapore
South Africa	Financial Sector Conduct Authority
Spain	Bank of Spain
Sweden	Financial Supervisory Authority (Finansinspektionen)
Turkey	The Central Bank of the Republic of Turkey
Ukraine	National Bank of Ukraine
United Kingdom	The Money and Pensions Service

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